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A MANUAL

OF

PHILIPPINE BIRDS

BY

RICHARD C. McGREGOR

PART I

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PREFACE.

During several years spent in collecting zoölogical specimens in the Philippine Islands the author has constantly experienced the need of a book containing descriptions of the Philippine birds. That others have felt the same want is evident from the many requests for literature received. Lists of Philippine birds * have been published from time to time but they contain no descriptions and are of use to those only who have a considerable library at hand.

The Catalogue of Birds in the British Museum contains descriptions of most of the known species of birds and these include very many of the Philippine species but the bulk of its 27 volumes would preclude the use of this work in the field even if its rarity and cost were not prohibitory. Thus there is an almost total lack of adequate means for identifying Philippine birds which has been a serious check to activity and interest in ornithological work throughout the Islands.

To meet this need and to place descriptions of the birds inhabiting the Philippines in a convenient form for the use of local naturalists the present work has been prepared. Technical terms and references to internal structure have been avoided as far as possible although this method weakens, to some extent, the keys and diagnoses of the higher groups. The diagnoses of orders, families, and genera being drawn from Philippine species may or may not define these groups as represented outside of the Archipelago.

The actual material which has been available for study consists of

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* The most important of these lists are the following:

Martens, E. V.: [Title not seen] *Jour. für Ornith.* (1866), 8–31.

Walden, Viscount: A List of Birds Known to Inhabit the Philippine Archipelago. *Trans. Zool. Soc.* London (1875), **9**, pt. 2, 125–252, pls. 23–34.

Ramsay, R. G. W.: Revised List of the Birds Known to Occur in the Philippine Islands, Showing their Geographical Distribution. Appendix, pp. 653–660, to the Ornithological Works of Arthur, Ninth Marquis of Tweeddale. London (1881).

Elera, R. P. Fr. Casto de: Aves. Catalogo Sistematico de toda la Fauna de Filipinas. Manila (1895), **1**, 52–398.

Worcester, D. C. and **Bourns**, F. S.: A List of the Birds Known to Inhabit the Philippine and Palawan Islands, Showing their Distribution within the Limits of the Two Groups. *Proc. U. S. Nat. Mus.* Washington (1898), **20**, 549–566.

McGregor, R. C. and **Worcester**, D. C.: A Hand-List of the Birds of the Philippine Islands. *Bur. Govt. Labs.* Manila (1906), No. **36**, 1–121.

about 8,000 specimens of birds collected for the Bureau of Science, a few skins received in exchange from the Menage Collection, nearly 200 skins received from the United States National Museum, part in exchange and part as a loan, and a few small lots of skins from various sources. There are, however, some 150 species inhabiting the Philippines of which not a single specimen has been examined. Of some other species the available material is quite inadequate for complete descriptions; this is particularly true of the shore and water birds, most of which visit the Philippine Islands as migrants and can not be obtained here in breeding plumage.

To meet these deficiencies a large number of descriptions have been taken from previous works, notably the Catalogue of Birds in the British Museum, Oates's Birds of British Burmah, and the four volumes on birds in the Fauna of British India, while a few have been taken from periodicals. All copied descriptions and parts of descriptions are inclosed in quotation marks followed by the authors' names; the exact reference in each case will be found in the synonymy of the species described.

The quotations ending with "*Bourns and Worcester MS.*" are taken from a manuscript prepared by Messrs. Frank S. Bourns and Dean C. Worcester and based upon the ornithological specimens collected by the Menage Expedition. This manuscript was intended for publication by the Minnesota Academy of Natural Sciences, but as that institution was unable to meet the necessary expense, the right to use the manuscript reverted to the authors who have permitted the publication of their notes in this Manual.

The scientific name, an English name, and such native names as seem to be commonly used with some degree of accuracy are given for each species.

The synonymy consists of references to original descriptions and to all works from which quotations are made; also to the following works when the species is given in them: Catalogue of Birds in the British Museum, Sharpe's Hand-List of the Genera and Species of Birds, Oates and Reid's Catalogue of Birds' Eggs in the British Museum, and McGregor and Worcester's Hand-List of Philippine Birds; other references are to plates or figures, records of rare species, important descriptions, notes on habits, or critical remarks.*

The distribution of each species is given by islands, arranged alphabetically, with the names of collectors so far as these have been worked out from the available literature. Distribution outside of the Philippine Islands is given in a general way only.

To the descriptions and measurements of the birds are added notes on habits, nests and eggs, abundance, etc. and in very many cases manuscript notes by Bourns and Worcester, giving information on habits, colors of soft parts, measurements, and validity of species.

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* Very full references to literature may be found in Catalogue of the Birds in the British Museum and in Catalogue of the Collection of Birds' Eggs in the British Museum (Natural History).

All measurements are in the metric system. In copied descriptions inches and hundredths have been carefully reduced to millimeters and the English measurements omitted, tenths and hundredths of millimeters being disregarded in most instances.

In accordance with Canon XXXVII of the Code of Nomenclature adopted by the American Ornithologists' Union, Revised Edition (1908), generic and specific names, unless evidently misprinted, are spelled as in the original descriptions. Dr. Charles W. Richmond, Assistant Curator, Division of Birds, United States National Museum, has most kindly verified a very large number of these citations.

The last half century has been exceedingly fruitful in systems of classification, some of them excellent, most of them suggestive and helpful. The whole subject has been reviewed in a masterly way by Newton, Dictionary of Birds, London (1896), 45–120 of introduction.

The present author has not the ability to judge of the relative merits of the schemes of classification proposed by various authors but the system set forth in Sharpe's Hand-List * and copied in McGregor and Worcester's Hand-List of Philippine Birds is followed as being both convenient and well known.

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* Sharpe, R. B.: A Hand-List of the Genera and Species of Birds. London (1899–1903), **1–4**, Vol. **5** in press.

For other systems of classification the following may be consulted:

Huxley, T. H.: On the Classification of Birds; and on the Taxonomic Value of the Modifications of Certain of the Cranial Bones observable in that Class. *Proc. Zool. Soc.* London (1867), 415–472.

Stejneger, L.: Standard Natural History. Boston (1885), 4, Birds (part). An outline of Stejneger's scheme of classification may be found in the *Zoological Record* (1885), **22**, pt. Aves. 14–18.

Fürbringer, M.: Untersuchungen zur Morphologie und Systematik der Vogel. Zugleich ein Beitrage zur Anatomie der Stütz– und Bewegungsorgane. Royal Zoological Society, Amsterdam (1888). For reviews of Fürbringer's classification see Gadow, *Nature* (1888), **39**, 150–152; 177–181, and Evans, *Zool. Record*, Aves (1888), **25**, 14–16.

Evans, A. H.: Cambridge Natural History, Birds. New York and London (1900), **9**, xi–xvi (Scheme of Classification).

Gadow, H.: On the Classification of Birds. *Proc. Zool. Soc.* London (1892), 229–256.

Dubois, A.: Synopsis Avium. Brussels (1899–1904), 1–1339, pls. 1–16.

Ridgway, R.: The Birds of North and Middle America. *Bull. U. S. Nat. Mus.* Washington (1901), No. **50**, pt. 1, 1–12.

Clark, H. L.: The Classification of Birds. *Auk* (1901), new ser., **18**, 370–381.

Shufeldt R. W.: An Arrangement of the Families and Higher Groups of Birds. *Am. Naturalist* (1904), **38**, 833–857.

USE OF THE KEYS.

A key is a short cut used to approximate identification without reading a great number of descriptions. The keys given here differ in no essential particular from those to be found in other systematic works on ornithology, but for the benefit of the beginner their use may be briefly explained.

Having in hand an unknown bird begin with the key to the Orders (p. 7), reading first the line beginning a^1; if the specimen has the characters given after a^1 then the bird belongs to the Order Pelecaniformes and another key is to be used which will be found under that order. (p. 200). If the characters on the line after a^1 are not found in the specimen, then those given on the line a^2 are to be examined and these the specimen must have, if no mistake has been made. The next choice is between b^1 and b^2 and so on until characters are found which agree with those of the specimen and at the same time lead to a word at the right printed in heavy face type; this is the name of the order to which the specimen belongs.

Having determined the order turn to the page where the order begins and use the key there which leads to the suborders or to the families, then find and use the keys to genera and species.

To illustrate the use of keys with a concrete example, suppose that we have a specimen of the common spoon-billed duck or shoveler, but know nothing of its affinities. Beginning with the key to orders we find:

"a^1. Hind toe connected by a web to the inner toe." As this does not agree with our specimen we try:

"a^2. Hind toe not connected by a web to the inner toe." Yes.

  "b^1. Nostrils tubular." No.

  "b^2. Nostrils not tubular." Yes.

    "c^1. Cutting edges of bill more or less distinctly fringed or serrated, tip of bill rounded.. **Anseriformes.**"

Yes, and our bird belongs in the order Anseriformes. By a similar procedure we find that our duck belongs in the subfamily *Anatinæ* (p. 185) and in the key to genera (p. 187) we find:

"a^1. Bill not spatulate."

"a^2. Bill flattened, and spatulate.. **Spatula.**"

As our duck has a flattened, spatulate bill we turn to the genus *Spatula* (p. 196) and as there is but one Philippine species in this genus we know that our bird is—

Spatula clypeata (Linnæus).

SHOVELER.

A MANUAL OF PHILIPPINE BIRDS.

By Richard C. McGregor.

Class AVES.

Oviparous, warm-blooded, amniotic vertebrates which have their anterior extremities transformed into wings. Metacarpus and fingers carrying feathers or quills. With an intertarsal joint. Not more than four toes of which the first is the hallux. (*Gadow.*)

Subclass CARINATÆ.

Sternum with a keel; scapulæ and coracoids fused forming an acute or a right angle; foramen ischiadicum present; distal six or seven vertebræ fused to form the pygostyle.

Orders.

a^1. Hind toe connected by a web to the inner toe.................. **Pelecaniformes** (p. 200)
a^2. Hind toe not connected by a web to the inner toe.
  b^1. Nostrils tubular.
    c^1. Bill strong and decidedly hooked at the tip............ **Procellariformes** (p. 84)
    c^2. Bill weak, very small, gape very wide.. **Caprimulgi in Coraciiformes** (p. 295)
  b^2. Nostrils not tubular.
    c^1. Cutting edges of bill more or less distinctly fringed or serrated, tip of bill rounded .... **Anseriformes** (p. 184)
    c^2. Cutting edges of bill not fringed.
      d^1. Rectrices rudimentary; or if evident not prominent, being short, soft, and hidden by the upper coverts.
        e^1. Tarsus flat; toes lobed.. **Colymbiformes** (p. 82)
        e^2. Tarsus normal; toes not lobed.
          f^1. Hind toe wanting.. **Hemipodii** (p. 17)
          f^2. Hind toe present.
Excalfactoria and **Megapodius** in **Galliformes** (p. 9)
      d^2. Rectrices not rudimentary; if short not hidden by upper coverts.
        e^1. Anterior toes distinctly webbed and tarsus shorter than tail.
Lariformes (p. 85)
        e^2. Anterior toes not distinctly webbed; or, if webbed, tarsus decidedly longer than tail; or else bill extremely small with gape very broad and deeply cleft.
          f^1. Lower portion of thighs naked; or, if feathered, the bill lengthened and grooved along each side, the outer and middle toes separated for their entire length.

g^1. Hind toe well developed and inserted on the level of the anterior toes; claws not excessively lengthened; loral or orbital region or both naked.. **Ardeiformes** (p. 157)

g^2. Hind toe if present, small and inserted above the level of the rest; or else size of bird small (less than 1 meter), loral and orbital regions fully feathered and middle claw not pectinate.

h^1. If more than 1 meter long the hind toe short and elevated; if less than 1 meter long the hind toe not elevated.

i^1. Size very large; hind toe small and elevated. **Gruiformes** (p. 155)

i^2. Size medium to small; hind toe not elevated. **Ralliformes** (p. 65)

h^2. Less than 1 meter long, usually much less; the hind toe if present, short and elevated, or if long the claws excessively long and wings spurred.................... **Charadriiformes** (p. 98)

f^2. Lower portion of thighs feathered; or else middle and outer toes united for at least half their length, the bill if lengthened not grooved along the side.

g^1. Bill strongly hooked and with a distinct cere at base of upper mandible.

h^1. Toes three in front; or else outer toe reversible; claws sharp and powerful.

i^1. No facial disk of modified feathers; plumage normal, compact; nostrils generally not concealed by bristles. **Accipitriformes** (p. 210)

i^2. Eyes surrounded by a disk of modified feathers; plumage soft and fluffy; nostrils usually concealed by stiff bristles. **Strigiformes** (p. 249)

h^2. Toes two in front and two behind, the outer toe permanently reversed; claws small and dull.......... **Psittaciformes** (p. 272)

g^2. Bill not strongly hooked and without a cere at base of upper mandible.

h^1. Hind toe small and elevated........................ **Galliformes** (p. 9)

h^2. Hind toe or toes well developed and on the same level as the anterior toes.

i^1. Upper mandible with a soft swollen base. **Columbiformes** (p. 23)

i^2. Bill without a soft swollen base.

j^1. Toes two in front, two behind; rarely two in front and one behind, then the bill straight and the rectrices stiff and pointed.

k^1. Two toes in front united for their basal joint.

l^1. Inner toe reversed, tail graduated.... **Trogones** (p. 362)

l^2. Outer toe reversed, tail nearly square. **Scansores** (p. 389)

k^2. Two toes in front perfectly free.

l^1. Bill straight, its tip chisel-shaped; rectrices stiff, with stiff, pointed tips.......................... **Piciformes** (p. 392)

l^2. Bill more or less curved; rectrices long and soft, without stiff, pointed tips.................... **Coccyges** (p. 363)

j^3. Toes three in front, one behind; rarely two in front and one behind, then the tail soft; or rarely four toes turned forward and arranged in pairs.
  k^1. Claw of hind toe shorter than that of third toe; feet weak, or feet strong and two toes united for their basal joint .... **Coraciiformes** (p. 295)
  k^2. Claw of hind toe equal to or longer than that of middle toe.
    l^1. Outer and middle toes united for their basal joint; bill broad; eye surrounded by a fleshy wattle; tail graduated.............................. **Eurylæmiformes** (p. 410)
    l^2. Outer and middle toes not united; toes four in number; rectrices twelve with rare exceptions; bill variable in shape, never extensively membranous, softly tumid, nor cered..................... **Passeriformes** (p. 413)

Order GALLIFORMES.

MEGAPODES, PAINTED QUAIL, AND PHEASANTS.

Bill short and stout, culmen curved; head small; body heavy; wings short and rounded, curved to the body; tail either very short or greatly elongated; legs moderate to heavy; claws well developed; toes four, slightly webbed at base. Members of this order are terrestrial; their flight is strong and swift but can not be sustained for a long distance. Their food consists of grain, seeds, and insects. The nest is usually a slight hollow in the ground, hidden by grass or brush; the megapodes, however, bury their eggs in mounds.

Suborders.

a^1. Hind toe on a level with the other toes; feet and claws very heavy; colors plain, the sexes similar in color.. **Megapodii** (p. 9)
a^2. Hind toe slightly elevated; feet and claws moderate in size; sexes very different in color; males much brighter....................................... **Phasiani** (p. 11)

Suborder MEGAPODII.

Family MEGAPODIIDÆ.

Nostrils oval, situated near anterior border of surrounding membrane; bill moderate, culmen curved; orbital area nearly naked; ear-opening small; chin, throat, and face scantily feathered with short plumes, the skin usually red or dusky; legs, feet, and claws very large and powerful; claws slightly curved and usually blunt; anterior face of tarsus bearing a row of large scutes; rectrices short, exceeding coverts but little; sexes alike.

Genus MEGAPODIUS Gaimard, 1823.

Characters same as those given for the Family.

1. MEGAPODIUS CUMINGI Dillwyn.

PHILIPPINE MEGAPODE.

Megapodius cumingii DILLWYN, Proc. Zool. Soc. (1851), 119, pl. 39.
Megapodius pusillus TWEEDDALE, Proc. Zool. Soc. (1877), 765, pl. 78 (juv.).
Megapodius dillwyni TWEEDDALE, Proc. Zool. Soc. (1877), 766.
Megapodius cumingi GRANT, Cat. Birds Brit. Mus. (1893), **22**, 449; MEYER and WIGLESWORTH, Birds of Celebes (1898), **2**, 671, pl. 41, fig. 1; SHARPE, Hand-List (1899), **1**, 12; OATES, Cat. Birds' Eggs (1901), **1**, 16; MCGREGOR and WORCESTER, Hand-List (1906), 7.

Ou-cong', Calayan, Camiguin N.; *ta-bon'*, Luzon, Mindoro, Cagayancillo, and in general.

Balabac (*Steere, Everett*); Bantayan (*McGregor*); Basilan (*Steere, Steere Exp., Bourns & Worcester*); Cagayancillo (*McGregor*); Calayan (*McGregor*); Camiguin N. (*McGregor*); Cebu (*Everett, Bourns & Worcester*); Cresta de Gallo (*McGregor*); Fuga (*Whitehead, McGregor*); Luzon (*Cuming, Heriot, Whitehead*); Marinduque (*Steere Exp.*); Mindanao (*Steere, Everett, Steere Exp., Bourns & Worcester, Goodfellow*); Mindoro (*McGregor, Porter*); Palawan (*Everett, Lempriere, Whitehead, Platen, Bourns & Worcester, White*); Romblon (*Bourns & Worcester*); Samar (*Bourns & Worcester*); Sibutu (*Everett*); Sibuyan (*Bourns & Worcester*); Sulu (*Bourns & Worcester, Platen*); Tablas (*Bourns & Worcester*); Tawi Tawi (*Bourns & Worcester*); Ticao (*McGregor*). Celebean Islands and islands of northwestern Borneo.

Adult.—Top of head dark blue-gray with a wash of olive-brown; a narrow gray collar on hind neck; rest of upper parts, including exposed parts of folded wing, rich olive-brown; lower parts dark blue-gray. Iris brown; bill yellow, dusky at base and about nostrils; legs and nails black or dark brown; skin about eye varies from bright red to almost black. A male from Cagayancillo measures, 340 in length; wing, 230; tail, 72.4; tarsus, 62; middle toe with claw, 57; bill from nostril, 14. A female from the same island measures, 340 in length; wing, 235; tail, 70; tarsus, 58; middle toe with claw, 57; bill from nostril, 14.

Young.—A bird measuring but 165 in length, taken in Calayan, October 7, 1903, bears a general resemblance to the adult but the superorbital space, lores, chin, and throat are closely feathered; forehead, chin, and area below eye dull yellowish brown; throat, sides of neck, and breast dull brown; middle of abdomen dark ochraceous brown; feathers of upper parts dark brown, obscurely edged with olive-brown on back, scapulars, and wing-coverts; plumage, except remiges and rectrices, soft and decomposed.

Nest.—The incubation mound built by this species is fully described below. The eggs are prized by the natives for food; both the eggs and the birds are quite palatable. When fresh the thin surface layer of the egg is dark pink, usually smooth, but occasionally roughened by small lumps; when exposed to air and light for some time the color becomes dull, dirty brown and in many cases the outer layer crumbles away exposing the true shell which is dull white and closely pitted. Five eggs from Calayan taken in December measure: 78 by 52; 82 by 52.5; 82.5 by 47; 80 by 51; 79 by 51.

"This species probably occurs on every island of any size in the group. It is frequently met with a considerable distance inland, where it frequents wooded plains and hill. Its nest is usually, though by no means always, built near the seashore. Several pairs of birds frequently nest in the same mound, scratching up a little additional material every time that an egg is deposited, eventually forming a very large mound of earth, decayed leaves, sticks, etc., which in extreme cases comes to measure from 4 to 5 meters in diameter by 1½ meters high in the middle. The mound is frequently formed about the roots of some old stump. When ready to lay, the female tunnels into this mound, sometimes even burrowing into the solid ground to a depth of half a meter or more, so that the eggs are one to two meters below the surface of the mound. The egg is deposited at the bottom of this burrow, which is then filled up. The young birds dig to the surface as soon as hatched. They can run and fly when they leave the shell, and seem always to shift for themselves from the day of their birth. *M. cumingi* seems to lay all the year round, the female apparently depositing an egg about once a week. The eggs are oval in form, of a curious pinkish color when fresh, but rapidly fading to a light dirty brown if exposed to the light.

"The old birds seem rather reluctant to take wing and when flushed fly but a short distance, alight on the ground and run with great rapidity.

"There is much individual variation as to size and color even in birds from one locality. Length, 336 to 380; culmen, 15 to 19; tarsus, 55 to 68; wing, 210 to 233; tail, 63 to 86. Iris dark chocolate-brown; bill light yellowish at tip, brown at base; legs sometimes dark brown, but usually strongly tinged with red, especially at back; feet dark brown to black; nails black." (*Bourns and Worcester MS.*)

Suborder PHASIANI.

Family **PHASIANIDÆ.**

Bill strong and horny, nostrils oblong, never hidden by feathers; culmen curved but not hooked; tarsi naked and in the male armed with spurs (*Excalfactoria* without spurs); toes four, naked, and never pectinated along sides; sexes differently colored.

Genera.

a^1. Much smaller; length less than 150 mm.; head without crest or comb; spurs absent .... **Excalfactoria** (p. 12)

a^2. Much larger; length more than 350 mm.; head crested or with a comb; spurs present in the male.

  b^1. No crest but with a fleshy comb; tail-coverts without ocelli; male with one pair of spurs........ **Gallus** (p. 13)

  b^2. No comb but with an elongated crest; longer tail-coverts ocellated; male with two or three pairs of spurs........ **Polyplectron** (p. 16)

Genus EXCALFACTORIA Bonaparte, 1856.

This genus resembles *Turnix* but is distinguished from it by having a hind toe; the male is much handsomer than the female; the tail has but eight short rectrices which are hidden by the long upper coverts.

2. EXCALFACTORIA LINEATA (Scopoli).

ISLAND PAINTED QUAIL.

Oriolus lineatus Scopoli, Del. Flor. et Faun. Insubr. (1786), 2, 87.

Excalfactoria lineata Grant, Cat. Birds Brit. Mus. (1893), 22, 253; Sharpe, Hand-List (1899), 1, 32; Oates, Cat. Birds' Eggs (1901), 1, 48, pl. 4, fig. 2; McGregor and Worcester, Hand-List (1906), 7.

Pu-gong bú-quet, ti-co ti-co, Manila; *pu-gong pa-rang,* Calapan, Mindoro.

Basilan (*McGregor*); Batan (*McGregor*); Bongao (*Everett*); Calamianes (*Bourns & Worcester*); Cebu (*Bourns & Worcester*); Lubang (*McGregor*); Luzon (*Heriot, Whitehead, McGregor*); Masbate (*Bourns & Worcester*); Mindanao (*Koch & Schadenberg, Clemens*); Mindoro (*McGregor, Porter*); Negros (*Layard, Steere Exp., Bourns & Worcester*); Palawan (*Whitehead, Bourns & Worcester, White*); Panay (*Bourns & Worcester*); Samar (*Whitehead*); Sibuyan (*McGregor*); Siquijor (*Celestino*); Sulu (*Guillemard*); Ticao (*McGregor*). Sumatra, Java, Borneo, Australia.

Adult male.—Upper parts dark brown; most of the feathers with light shaft-lines, large subterminal black blotches, and some black bars; the black markings heaviest on lower back; forehead, circumorbital area, sides of neck, breast, and flanks slate-blue; chin, upper throat, and lower half of face black; throat patch bordered posteriorly by a wide, crescentic, white patch which is bordered posteriorly by a narrow black band; a white included patch on side of face from lower mandible to below ear, the anterior end of which is pointed; a narrow white line from below nostril to eye; a patch of rich chesnut covering middle of abdomen and lower breast; wings sandy brown; coverts and secondaries vermiculated with darker brown; tail chestnut; upper tail-coverts chestnut mixed with slate-blue. Iris deep red; bill dark blue, black along upper part; legs dark yellow; nails brown. Length about 135. Five males measure:

Wing, 66 to 70; tail-coverts,* 26 to 28; exposed culmen, 9 to 11; tarsus, 18 to 19.

Adult female.—Upper parts and wings as in the male, but with a light buff, median line on head; forehead, sides of head, and throat dark buff; the black and white throat patch of male replaced in female by an equal area of dark buff in which the white bases of feathers show through on chin and upper throat; a line of fine black spots from gape to below ear-coverts; breast and flanks light buff, each feather crossed by one to three crescentic marks of blackish brown; middle of abdomen white or with a pale buff wash. Five females measure: Wing, 67 to 71; tail-coverts, 22 to 26; exposed culmen, 10 to 11; tarsus, 17 to 18.5.

Young.—In a very young chick from Sibuyan, sex undetermined, the upper parts, including wings and coverts, are blackish brown; top of head marked with three buffy lines extending from forehead to nape and separated by wide blackish brown bands; wing-coverts and feathers of back with edges and shafts buff; chin and throat pale yellow; upper breast, sides, and flanks black with wide white shaft-stripes; belly dirty yellowish buff. A nearly full grown male in mixed plumage, from Calapan, has the black chin-spot developed, the white patches partly developed, and the breast, abdomen, and flanks retain some of the old striped feathers of the first plumage along with the new chestnut and slate feathers. The young female of *E. chinensis* is said to have the upper breast and sides spotted; as age increases these spots resolve themselves into transverse bars. The young female of *E. lineata* probably undergoes a similar change of plumage.

Both the painted and bustard quails frequent grassy fields and plains, usually in small companies. When flushed they fly but a short distance and seldom get up a second time, seeming to place more reliance on running than on flight. Except *Polyplectron* the genera of the Philippine *Turnicidæ* and *Phasianidæ* range from the coasts to the highlands.

Genus GALLUS Brisson, 1760.

Head surmounted by a fleshy comb; a wattle on each side of throat; tail laterally compressed, the central feathers being higher than the lateral ones; the former greatly elongated and curved in the males; feathers of neck and rump long and pointed; each tarsus armed with a long sharp spur.

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* It is a matter of difficulty to distinguish between the soft short tail-feathers and the long, overhanging coverts; in this species, therefore, it is more convenient to measure from base of tail to tip of longest covert.

3. **GALLUS GALLUS** (Linnæus).

RED JUNGLE FOWL.

Phasianus gallus LINNÆUS, Syst. Nat. ed. 10 (1758), **1**, 158.
Gallus bankiva TEMMINCK, Pig. et Gall. (1813), **2**, 87.
Gallus gallus GRANT, Cat. Birds Brit. Mus. (1893), **22**, 344; SHARPE, Hand-List (1899), **1**, 39; OATES, Cat. Birds' Eggs (1901), **1**, 59; MCGREGOR and WORCESTER, Hand-List (1906), 8.
? Gallus stramineicollis SHARPE, Proc. Zool. Soc. (1879), 317.*

La-bú-yu, Lubang, Manila, and generally; *ma-noc' i-has'*, Bohol.

Balabac (*Steere*); Basilan (*Everett, Bourns & Worcester, McGregor*); Bohol (*McGregor*); Bongao (*Everett*); Calamianes (*Bourns & Worcester*); Camiguin N. (*McGregor*); Calayan (*McGregor*); Cebu (*Everett, Steere Exp., Bourns & Worcester, McGregor*); Fuga (*Whitehead, McGregor*); Guimaras (*Meyer, Steere Exp.*); Lubang (*McGregor*); Luzon (*Meyer, Schmacker, Whitehead, McGregor*); Marinduque (*Steere Exp.*); Masbate (*Bourns & Worcester*); Mindanao (*Everett, Steere Exp., Goodfellow*); Mindoro (*Steere Exp., Bourns & Worcester, McGregor, Porter*); Negros (*Bourns & Worcester, Keay*); Palawan (*Steere, Whitehead, Platen, Bourns & Worcester, White*); Panay (*Steere, Bourns & Worcester*); Romblon (*Bourns & Worcester*); Samar (*Steere Exp., Bourns & Worcester*); Sibuyan (*Bourns & Worcester, McGregor*); Siquijor (*Steere Exp., Celestino*); Sulu (*Guillemard, Bourns & Worcester*); Tablas (*Bourns & Worcester*); Ticao (*McGregor*). Malay and Indian Peninsulas, Indo-Malayan Islands, Indo-Chinese countries.

Adult male.—Sides of head, chin, and throat clothed with scattered hair-like feathers; ear protected by short close-set feathers; feathers on top of head, neck, and mantle lanceolate, those of mantle very long; head, neck, and sides of neck dark reddish brown, becoming lighter and yellowish near ends of longest feathers, and forming a zone of orange-yellow, the tips again darker, reddish, and shaft-lines darker; mantle feathers hidden by hackles, and lesser coverts blackish brown with slight gloss; lower back and median coverts rich maroon-red forming a wide crescent; lanceolate rump feathers dark orange-red; below (except a few lanceolate reddish feathers on throat) blackish brown with a slight green gloss not always evident; primaries dark brown edged with buff; secondaries dark brown with exposed outer webs dark cinnamon, mottled near tips; alula and greater coverts blackish brown, the latter with green and purple gloss; tail and its upper coverts black, glossed with green; middle pair of rectrices curved outward and about twice the length of next pair. Top of head decorated with a deeply emarginated, fleshy comb, crimson in color; a wattle on each side of throat also crimson; a round lappet below each ear light bluish; other bare areas of head and neck pale crimson; bill dark brown above, lighter below; legs gray, spurs black, nails dark brown. The length varies greatly, of course, with the development of central rectrices. A male from Mariveles, Bataan measures, 660 in length; wing, flat on rule, 235; tail, 368; bill from front of comb, 17; tarsus, 74; middle toe with claw, 59; spur, 24. A male from Fuga, tail, 508; spur, 28.

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* The status of *Gallus stramineicollis*, described from a specimen collected in Sulu by Burbidge, is somewhat doubtful; Grant considers it a domestic bird. The original description follows:

"General color above black, shot with green and purple; wing-coverts like the back, the innermost and the scapulars with a slight subterminal shine of coppery brown; primary-coverts and primaries black, the secondaries externally green; feathers of the lower back and rump straw-yellow, with darker longitudinal centers of black or green; upper tail-coverts and tail glossy oil-green; crown of head and nape black; hind-neck and neck-hackles, as well as sides of neck, straw-yellow, deeper on the hind-neck, with green longitudinal centers to the feathers; remainder of under surface of body black with a green gloss; comb short and rounded; sides of face and entire throat bare. Total length 34.5 inches [876 mm.], culmen 1.1 [28], wing 9.0 [229], tail 17.5 [445], tarsus 3.4 [86]."

"*Adult female.*—Top of the head rust-red, shading into orange on the neck and pale yellow on the upper mantle, each feather with a wide black stripe down the center; rest of upper parts pale reddish brown, finely mottled with black and with pale shafts; quills blackish brown, the outer half of the outer webs of secondaries mottled with pale reddish brown; fore part of neck chestnut; chest and breast pale light red, shading into pale reddish brown on sides, flanks, and belly, each feather with a pale shaft; under tail-coverts brownish black; tail-feathers like the secondaries, the center pair of feathers mottled on the margins of both webs, and the outer pairs on the outer web, with pale rufous. Soft parts much the same as those of the male; comb very much smaller, and wattles absent. Length, 420; wing, 190; tail, 140; tarsus, 61.

"*Immature males* have the hackles of the mantle much paler than in the majority of adult birds and mostly with dark shaft-stripes; the chestnut part of the outer webs of the secondaries finely mottled with black nearly to the margins; the feathers underlying the hackles of the mantle dull, brownish black without any green gloss, and the comb and wattles rudimentary." (*Grant.*)

Chick.—Below light yellow-buff, palest on chin; throat, upper breast, and sides of neck washed with brownish buff; top and sides of head dark yellow-buff; a band from above angle of mouth backward through eye to side of neck dark cinnamon, bordered above with blackish brown; middle of crown and hind neck with a wide, black-bordered cinnamon patch which becomes diffused on interscapular region, reappears on middle of back and is continued to the tail; the black bordered on each side with light buff followed by dark brown; wings and tail light brown, speckled and vermiculated with darker brown. Iris light brown; bill, legs, and nails flesh. Small chicks were taken in Mariveles, Province of Bataan, March 8, 1902, and at Irisan, Province of Benguet, on April 30, 1903.

Nest.—A slight hollow dug in the earth in the shelter of bushes or grass is the usual nest. The eggs are much smaller than with domestic varieties; four from a nest found February 26, 1904, near Mariveles, Bataan, measure respectively: 47 by 36; 44 by 34; 45 by 35; 46 by 35. In color the eggs are light creamy buff; the shape is similar to that found in eggs from the domestic varieties.

The jungle fowl is found throughout the Philippines and the males are frequently domesticated by the natives and used for their national pastime of cock fighting. In this country at least the wild chickens afford the gunner no sport whatever as they habitually remain within thick tangles of brush where wing-shots are impossible, or, if by chance caught in the open, they scurry to the nearest thicket. There is no great difficulty, however, in securing specimens, if one cares to kill them sitting. Their flesh is usually tender and more savory than that of the domestic birds. The male has a high falsetto voice resembling very much that of a young domestic cock. Delighting in small growth mixed with a tangle of bamboo and rattan, especially if near cultivated fields, this species generally avoids true forest unless there be near-by clearings. The natives are very successful in taking the cocks alive by employing a live decoy which they picket within a small corral of snares.

Genus POLYPLECTRON Temminck, 1807.

Bill similar to that of *Gallus;* feathers of crown forming a long crest; wings short and rounded; rectrices twenty-four in number and greatly graduated; upper tail-coverts lengthened; tarsi covered with transverse plates and each tarsus armed with two or three sharp spurs; tarsus longer than middle toe with claw.

4. **POLYPLECTRON NAPOLEONIS** Lesson.

PALAWAN PEACOCK PHEASANT.

Polyplectron napoleonis LESSON, Traite d' Orn. (1831), 487, 650; GRANT, Cat. Birds Brit. Mus. (1893), **22**, 361; BOURNS and WORCESTER, Minnesota Acad. Nat. Sci. Occ. Papers (1894), **1**, 43; McGREGOR and WORCESTER, Hand-List (1906), 8.

Polyplectron nehrkornæ BLASIUS, Mitth. orn. Ver. Wien (1891), 1; GRANT, Cat. Birds Brit. Mus. (1893), **22**, 360.

Polyplectrum napoleonis SHARPE, Hand-List (1899), **1**, 39.

Pavo real, Spanish name.

Palawan (*Everett, Whitehead, Platen, Bourns & Worcester, White*).

Adult male.—Black; top of head, crest, and hind neck green, changing with the light to purple; a large white patch from base of lower mandible extending over ear-coverts; a narrow superciliary line of white (this line is absent in some specimens; in others wider and confluent on nape): mantle, secondaries, and greater and median wing-coverts green, changing to blue and purple, bases of the feathers black; remainder of wing brown or blackish; back and rump black, thickly marked with small, rusty buff spots; longest coverts and rectrices similar but the spots fewer and lighter and each feather with two large, round or oval spots of peacock-green, surrounded by a black ring and an outer gray ring; longest coverts tipped with a narrow line of pale buff; rectrices tipped with lines of black, gray, white, and gray, the white line narrow and sharply defined; under parts all black, except tail-coverts which are speckled with buff. "Bill black tipped with pale horn-color; eyes chocolate-brown; legs, feet, and nails brown." (*Bourns and Worcester.*) A male from Iwahig, Palawan, measures: Wing, 190; tail, 240; exposed culmen, 28; bill from nostril, 15; tarsus, 66; middle toe with claw, 56.

Female.—Top of head and a short crest dark brown; sides of face, chin, and throat white; remainder of the plumage brown, more rusty above and on wings, finely speckled with dark brown and black; tail with the large round metallic spots of the male replaced by black spots having little or no metallic color. A female from Iwahig, Palawan, measures: Wing, 180; tail, 183; exposed culmen, 22; bill from nostril, 13; tarsus, 54; middle toe with claw, 48.

Young.—"An immature male resembles the female, but has tail and greater coverts like those of adult male, though the ocelli are much smaller and absent on inner webs of all the tail-feathers except three middle pairs; one or two feathers of mantle have a metallic bluish green patch in the middle and traces are apparent of black plumage on mantle, wing-coverts, throat, and under parts." (*Grant.*)

This beautiful peacock pheasant, the "pavo real" of the Spaniards, is confined to the Island of Palawan. Bourns and Worcester state that the species is extremely shy, all of their specimens, including 18 adults beside young, being taken by natives in snares. They give the following average measurements: Eleven males, length, 519; wing, 180; tail, 222; culmen, 24; tarsus, 61; seven females, length, 420; wing, 166; tail, 150; culmen, 22; tarsus, 55.

Bourns and Worcester have shown that the character upon which *P. nehrkornæ* was based—i.e., narrow superciliary stripes not confluent on nape—is variable to a great degree and not dependent upon age, so *napoleonis* is accepted as the correct specific name for the Palawan bird, although originally applied to a specimen supposed to have come from Luzon, an island in which the genus certainly does not exist.

Major John R. White has secured a fine series of these birds at the Iwahig penal colony, and he states that he has seldom seen the birds until snared by the natives.

Order HEMIPODII.

BUTTON QUAILS.

Culmen curved but not hooked; nostrils opening by a slit beneath a horny scale; tarsi naked, without spurs; hind toe absent; wings short, rounded, and curved to the body; rectrices short, soft, and nearly hidden by the long fluffy coverts.

Family **TURNICIDÆ**.

Size small, the largest Philippine species under 200 mm. in length, the others much smaller. Birds of this family resemble *Excalfactoria* in general form but may be recognized by their lack of a hind toe. They are usually found in grassy plains. The flight is rapid but of short duration; the birds get up at one's feet but seldom flush a second time. The nest is placed on the ground beneath a tuft of grass; eggs, three or four, spotted with brown.

Genus TURNIX Bonnaterre, 1790.

Characters same as those given for the Family.

Species.

*a*¹. Breast without chestnut or rusty buff, heavily cross-barred with black. **fasciata** (p. 18)

*a*². Breast chestnut or rusty buff, without black cross-bars.
  *b*¹. Larger; wing more than 80 mm.; breast rich chestnut; chin white (♂), or black (♀), or white spotted with black (young) .... **ocellata** (p. 20)
  *b*². Smaller; wing less than 80 mm.; breast rusty buff; chin whitish, never black nor mixed with black.
    *c*¹. Bill more slender, depth at angle of gonys, 4 mm. or less.
      *d*¹. Smaller; wing, 57 to 60; tarsus, 16.5 to 18 mm........ **whiteheadi** (p. 20)
      *d*². Larger; wing, 65.5 or more; tarsus, 19 mm. or more.
        *e*¹. Larger; wing, 67 mm.; upper parts lighter........ **suluensis** (p. 21)
        *e*². Smaller; wing, 65.5 mm.; upper parts darker........ **celestinoi** (p. 22)
    *c*². Bill stouter, depth at angle of gonys, 5.8 mm........ **worcèsteri** (p. 23)

5. TURNIX FASCIATA (Temminck).

PHILIPPINE BUTTON QUAIL.

Hemipodius fasciatus TEMMINCK, Pig. et Gall. (1815), **3**, 634, 757.
Turnix fasciata GRANT, Cat. Birds Brit. Mus. (1893), **22**, 535; SHARPE, Hand-List (1899), **1**, 48; OATES, Cat. Birds' Eggs (1901), **1**, 70; MCGREGOR and WORCESTER, Hand-List (1906), 8.
Turnix nigrescens TWEEDDALE, Proc. Zool. Soc. (1877), 765.
Turnix haynaldi BLASIUS, Ornis (1888), **4**, 317.

Pu-gong daan, Manila; *tic-ti'-co*, Calapan, Mindoro.

Calamianes (*Bourns & Worcester*); Cebu (*Everett, Bourns & Worcester*); Luzon (*Everett, Heriot, Whitehead, McGregor, Mearns*); Masbate (*Bourns & Worcester*); Mindoro (*McGregor, Porter*); Negros (*Steere Exp.*); Palawan (*Whitehead, Platen, Steere Exp., Bourns & Worcester, White*); Panay (*Bourns & Worcester*); Sibuyan (*Bourns & Worcester*).

Adult male.—Above blackish brown; feathers of back largely black with white or buff margins; in some specimens the margins largely rufous; chin and throat white; breast and sides light buff with clear-cut, subterminal, black cross-bars; abdomen and belly dirty white; flanks and under tail-coverts washed with buff; quills blackish brown, first three or four narrowly edged with pale buff or white; first alula-quill widely edged with pale buff or white; coverts light buff, more or fewer with strong cross-bars. Bill black, yellow at base; legs pale greenish yellow. Length, 140. Three males measure: Wing, 68 to 76; tail, 23 to 28; culmen, 12 to 13; tarsus, 21 to 22; middle toe with claw, 18 to 19.5.

Adult female.—Like the adult male but larger; chin and throat black; hind neck and sides of neck decorated with a collar of rich chestnut. Iris white; bill yellow, slightly greenish toward tip; legs greenish; nails flesh-colored. Length, 160. Three females measure: Wing, 72 to 81; tail, 29 to 30.5; culmen, 13 to 14; tarsus, 23 to 25; middle toe with claw, 20 to 23.

Young.—Immature birds of both sexes resemble the adult male but the bars of breast are reduced to spots or to irregular V-shaped bars; above more uniform, dull rusty brown and edges of feathers more or less rusty; wing-coverts blackish brown, notched with white.

There is much variation in the color of the upper parts due to wear; birds in fresh plumage (February, Manila) are largely chestnut above and males may have a narrow chestnut collar; the rich color fades and the feathers become abraded very rapidly. A male (March 17, Tarlac) shows scarcely any chestnut and that of a faded hue. The species is easily recognized in any plumage by the black bars (spots in young) on breast.

Eggs.—"The eggs of the Philippine bustard quail are grayish white, densely covered with specks and dots of yellowish brown and small blotches of pale purple. The three examples in the collection [collected by the Steere Expedition in Negros, November 10], are very broad ovals and measure respectively: 28.4 by 21.3; 27 by 21.3; 26 by 21.3." (*Oates.*)

A nest believed to belong to this species was found in Mindoro, March 23, 1905. It was made of dry grass and placed on the ground in an old clearing, where it was well hidden by the surrounding grass. The three eggs were slightly incubated; two of them measure 25 by 20 and the third measures 24.6 by 19.8. The ground-color is white, closely speckled with dull greenish brown and occasional small spots of various shades of lilac, the larger end rather thickly marked with blotches of blackish brown. One specimen from Manila, July 30, 1908, measures 23.5 by 18.5.

"Common about old paddy-fields and on grassy plains. It flies but a short distance and then buries itself in the grass, where it runs rapidly and hides so well that one is seldom able to flush a bird the second time." (*Bourns and Worcester MS.*)

6. TURNIX OCELLATA (Scopoli).

SPOTTED BUTTON QUAIL.

Oriolus ocellatus SCOPOLI. Del. Flor. et Faun. Insubr. (1786), pt. 2. 88.
Turnix ocellata GRANT, Cat. Birds Brit. Mus. (1893), **22**, 548; SHARPE, Hand-List (1899), **1**, 49; MCGREGOR and WORCESTER, Hand-List (1906), 8.

Pu-gong gu'-bat, Manila.
Luzon (*Everett, Heriot, Whitehead, McGregor, Worcester, Mearns*).

Adult male.—Above mottled and spotted; head and sides of face black with roundish white spots and some rusty edging to feathers; rest of upper parts with large black centers to feathers whose edges are light buff and tips rusty; a slight trace of a chestnut nuchal collar; chin and middle of throat white; breast uniform rufous-chestnut; middle of belly dirty white; flanks, thighs, and under tail-coverts dirty buff; primaries brown with pale edges; secondaries mottled and with wider, buff edges; coverts and tertials buff, each with a larger, roundish, black spot. "Iris white, upper mandible grayish brown at tip, pale yellow from nostrils back; lower mandible pale yellow, except tip light brown, legs and feet light straw-yellow, except joints and soles light brown; nails gray. Length, 165." (*Worcester.*) A specimen from Benguet measures: Wing, 93; tail, 33; culmen, 15; tarsus, 25; middle toe with claw, 24.

Adult female.—Similar to male but larger; throat and chin black; chestnut of breast continued above as a wide nuchal collar. Iris white; bill pale yellow, grayish at tip; legs dull yellow; nails whitish. Length, 180; wing, 115; tail, 37; culmen, 17; tarsus, 29; middle toe with claw, 27.5. These measurements are from a specimen taken near Manila.

Young.—In young males the throat is more or less spotted with black and many of the breast-feathers are subterminally spotted with black. In young females the throat is more or less spotted with white.

This is much the largest of the Philippine button quails and appears to be confined to the Island of Luzon.

7. TURNIX WHITEHEADI Grant.

WHITEHEAD'S BUTTON QUAIL.

Turnix whiteheadi GRANT, Hand-Book Game Bds. (1896), **2**, 276; WHITEHEAD, Ibis (1899), **5**, 493; SHARPE, Hand-List (1899), **1**, 48; MCGREGOR, Bull. Philippine Mus. (1904), **4**, 7, pl. 1, fig. 2; MCGREGOR and WORCESTER, Hand-List (1906), 8.

Luzon (*Whitehead, McGregor*).

Adult male.—General color above black, finely vermiculated with gray and dull reddish brown or with dull chestnut; crown mostly black with dull chestnut tips to the feathers; a distinct median line of buff from bill to neck; many feathers on back edged with buff or whitish buff; forehead and whole side of face pale buff, most of the feathers black tipped;

chin, upper throat, and abdomen white; breast dark buff; a few black spots on sides of breast; a few feathers on sides, under wings, dull chestnut; quills brown with light edges; long alula-quill edged with white; coverts largely ochraceous-buff or dull chestnut and more or less marked with large black spots; long scapulars broadly edged with ochraceous-buff or pale yellow-buff. Iris white; upper mandible dark horn; lower mandible dull blue; legs and nails flesh-colored. Length, about 120; wing, 56.5 to 61; tail, 16.5 to 28; culmen, 9 to 10; tarsus, 16.5 to 18.

Adult female.—Differs from the adult male in having median crown-line and sides of face pale straw or whitish; a narrow collar of dull chestnut; above generally darker and marked with a greater amount of dull chestnut. Wing, 60 to 64; tail, 18 to 22; culmen, 9.5 to 11.5; tarsus, 17 to 18.

Young.—Immature birds are similar to adults but have the breast white, streaked with dark brown; upper parts more uniformly and less richly colored.

Eggs.—White with numerous, obscure, lilac markings; around the larger end a band of dark sienna; larger end covered to middle of egg with a wash of dark brown; edge of this color-area well-defined and slightly irregular; smaller end of egg with a few small specks and a faint brown wash. Two eggs measure respectively 20 by 16 and 20 by 16.5. Another egg, measuring 20.6 by 16.2, is white, speckled with brown and has nearly one-half the surface, at the larger end, covered with dark vandyke-brown. Eggs are deposited in August so far as known.

The only known specimens of Whitehead's button quail were purchased in the Quinta Market, Manila. It is said that they are trapped in the vicinity of Parañaque, some 7 kilometers from Manila.

8. TURNIX SULUENSIS Mearns.

SULU BUTTON QUAIL.

Turnix suluensis MEARNS, Proc. Biol. Soc. Wash. (1905), **18**, 83; MCGREGOR and WORCESTER, Hand-List (1906), 8.

Sulu (*Mearns*).

"*Adult female (type and only specimen).*—General color of upper parts walnut-brown, the feathers finely banded and vermiculated with gray and black; top of head clove-brown, the feathers almost imperceptibly edged with gray, divided by a median stripe of isabella-color extending from the base of the bill to the occiput; sides of head and neck buffy white speckled with clove-brown; nape walnut-brown, the feathers edged with gray; mantle walnut-brown, the feathers edged with gray, and vermiculated with black, gray, and traces of very pale cinnamon; lower back, rump, and upper tail-coverts clove-brown, the feathers narrowly edged with gray on the back and upper rump, more broadly with cinnamon on the lower rump and upper tail-coverts; tail grayish drab, the feathers perceptibly cross-banded with wavy lines of dusky, edged with cinnamon on outer webs, with middle pair of feathers extending 7 mm. beyond the next pair; scapulars and humerals conspicuously edged externally with golden buff and cinnamon; primaries grayish drab, the two outer ones edged externally with wood-brown; secondaries darker drab, edged with cinnamon on the outer web; greater wing-coverts cinnamon, drab at base, with a subterminal black spot on the outer web; lesser wing-coverts cinnamon-rufous, edged with buff, with a subterminal black ocellus; chin, upper throat, and malar region, whitish, the last speckled with blackish brown; lower neck and upper breast clay-color, bordered by a chain of oval black spots, the largest 3 mm. in length; lower breast and middle of belly whitish; sides of lower neck, and sides of chest and breast, chestnut mixed with black and clay-color; flanks light clay-color; under tail-coverts darker clay-color; lining of wings pale clay-color and pale grayish drab. Length of skin, 120; wing, 68; tail, 31; culmen, 11.5; depth of bill at angle of gonys, 3.8; tarsus, 19.5." (*Mearns.*)

9. **TURNIX CELESTINOI** McGregor.

CELESTINO'S BUTTON QUAIL.

Turnix celestinoi McGregor, Phil. Jour. Sci. (1907), **2**, sec. A, 292, 317.

Bohol (*McGregor*).

Adult male (*type and only specimen*).—Ground-color of upper parts black; feathers of head narrowly edged with dull buff, paler on forehead; a narrow median line of pale buff from forehead to nape; hind neck, mantle, rump, and tail-coverts with wavy, broken, cross-lines of dark rusty buff, obsolete on neck; lores and side of head light buff with small black tips to feathers; a patch on each side of neck pale vinaceous-buff with narrow black cross-lines; chin and throat white, each feather with narrow buff tips, middle of abdomen white; rest of lower parts rusty buff or clay-color, a trifle lighter than in *T. worcesteri;* each feather on sides of breast marked with a wide black bar; primaries, secondaries, primary-coverts, and alula drab-gray; first primary and first feather of alula edged exteriorly with ocherous-buff; secondary-coverts and inner secondaries with wide edges of ocherous-buff preceded by large black spots or bars; wing-lining and axillars drab-gray; tail bluish slate and hidden by the long coverts. Length, 130; wing, 65.5; tail, 18.1; exposed culmen, 11.5; depth of bill at angle of gonys, 4; tarsus, 20; middle toe with claw, 18.5.

The only specimen known was taken on a grassy hill near the town of Guindulman, in Bohol, June 22, 1906. It is closely related to *T. suluensis.*

10. TURNIX WORCESTERI McGregor.

WORCESTER'S BUTTON QUAIL.

Turnix worcesteri McGREGOR, Bull. Philippine Mus. (1904), 4, 8. pl. 1, fig. 1; McGREGOR and WORCESTER, Hand-List (1906), 8.

Luzon (*McGregor*).

Adult (*sexes nearly alike*).—General color above black; forehead spotted with white; feathers of crown and nape tipped with pale buff and some edged with white, producing an incomplete white line on middle of head (this line may be perfect in a well made skin); feathers on back and rump barred and tipped with pale buff; tertials and scapulars edged with whitish buff; feathers on sides of face mostly white with black tips; lores white; feathers on sides of neck black, each with a wide, subterminal, white bar; a small black spot behind ear; breast and throat rusty buff or dark clay-color, this color extending up each side of the white chin-area as rusty-buff tips to the feathers and bounded above by the black-tipped white feathers of malar region; flanks, under tail-coverts, and sides of abdomen and breast also rusty buff, but paler; middle of abdomen whitish; a few feathers on sides of abdomen barred with blackish brown; primaries, their coverts, and secondaries drab-gray; four outer primaries narrowly edged with whitish; secondaries barred with whitish on outer webs; secondary-coverts blackish, mottled and edged with pale buff; rectrices blackish, edged with buff. Bill pale bluish; legs flesh-pink, nails slightly darker; iris very pale yellow. A male measures: Length, 120; wing, 65; tail, 27; culmen from base, 10; depth of bill at angle of gonys, 5; tarsus, 17; middle toe with claw, 16. Length of female, 128; wing, 71; tail. 23.5; culmen, 11.4; depth of bill at angle of gonys, 5.8; tarsus, 16.7; middle toe with claw, 18.

Worcester's quail is known from four specimens which were purchased in Quinta Market, Manila. It resembles *T. whiteheadi* but differs from that species in having the bill much deeper. Major E. A. Mearns informs me that he is quite sure that he saw a live bird of this species in Manila, in August, 1907.

Order COLUMBIFORMES.

DOVES AND PIGEONS.

Tip of bill horny and strongly convex forming a "nail" which is often of a shade or color different from that of the soft, contracted, basal portion; covering of nostril generally tumid; toes four, three in front, cleft to the base or with a slight web; hind toe not elevated; legs and toes never much lengthened; tarsus either slightly longer or slightly shorter than middle toe without claw; wing flat and rather long; in several genera the primaries variously cut or attenuated; tail usually square or slightly rounded; never forked; in *Macropygia* and *Geopelia* the rectrices are greatly graduated. A few genera are terrestrial, but most of them are more or less arboreal and generally capable of strong, swift, and sustained flight. Their food is largely grain and small seeds; the larger species feed on the fruits of trees, rarely on the leaves. The nest is a slight structure of twigs placed on the ground, in a shrub, or in a tall tree. Eggs one or two, pure white or slightly cream-colored; in shape rather long, equal ended, ovals.

Suborder COLUMBÆ.

Characters same as those given for the Order.

Families.

*a*¹. Soles very broad; tarsus stout, more or less feathered, and generally shorter than middle toe without claw.
  *b*¹. Nostril coverings flat or but slightly swollen........................ **Treronidæ** (p. 24)
  *b*². Nostril coverings swollen forming a grape-seed shaped prominence on each side of culmen........................ **Columbidæ** (p. 51)
*a*². Soles not greatly expanded on sides of toes; tarsus more slender, unfeathered, and longer than middle toe without claw........................ **Peristeridæ** (p. 54)

Family TRERONIDÆ.

Soles very broad; tarsus stout, more or less feathered; bill stout or large; gape very wide in some; nostril covering flat or somewhat swollen; tail moderate in length, nearly square; medium to large sized species.

Subfamilies.

*a*¹. Under tail-coverts long, their tips reaching well beyond toes; size generally smaller; length, 340 mm. or less.
  *b*¹. First primary not attenuated; third primary scooped on middle of inner web, except in *Phapitreron* which has mostly brown plumage.
Treroninæ (p. 24)
  *b*². First primary abruptly attenuated, except in *Spilotreron* which has mostly green plumage; third primary normal........................ **Ptilopodinæ** (p. 36)
*a*². Under tail-coverts moderate, their tips reaching little if any beyond toes; size generally larger; length, 360 mm. or more.......... **Muscadivorinæ** (p. 42)

Subfamily TRERONINÆ.

Genera.

*a*¹. General color green or greenish yellow; rectrices fourteen, under coverts usually equal to or longer than shortest rectrix; third primary deeply scooped near middle of inner web.
  *b*¹. Horny nail of bill reaching feathers of forehead........................ **Treron** (p. 25)
  *b*². Horny nail of bill not reaching feathers of forehead.
    *c*¹. Tail slightly graduated; under tail-coverts broadly streaked, the shafts black........................ **Sphenocercus** (p. 26)
    *c*². Tail square; under tail-coverts not streaked, the shafts of the same color as the webs........................ **Osmotreron** (p. 26)
*a*². General color brown; rectrices twelve, under coverts shorter than shortest rectrix; third primary not scooped........................ **Phapitreron** (p. 29)

Genus TRERON Vieillot, 1816.

This genus differs from the other green pigeons in having the horny portion of culmen extending back to frontal feathers; a small naked area around eye; pattern and colors of the plumage very similar to those of *Osmotreron axillaris.*

11. TRERON NIPALENSIS (Hodgson).

THICK-BILLED GREEN PIGEON.

Toria nipalensis HODGSON, As. Research (1836), **19**, 164, pl. 9.

Treron nipalensis SALVADORI, Cat. Birds Brit. Mus. (1893), **21**, 34; SHARPE, Hand-List (1899), **1**, 53; OATES, Cat. Birds' Eggs (1901), **1**, 82; McGREGOR and WORCESTER, Hand-List (1906), 9.

Treron nasica STEERE, List Birds and Mams. Steere Exp. (1890), 24.

Mindoro (*Steere Exp., Bourns & Worcester*); Palawan (*Steere, Everett, Whitehead, Platen, Steere Exp., Bourns & Worcester, Celestino, White*). Nepal to Burma, Malay Peninsula, Siam, Cochin China, Tenasserim, Borneo.

Adult male.—Crown ashy, forehead lighter; face and neck dark gray, the latter followed by a narrow line of ashy gray; mantle, including lesser wing-coverts, dark chestnut; lower back, rump, and tail-coverts dark green; under parts yellowish green, breast more yellowish; thighs and flanks darker and greener, mixed with white; under tail-coverts cinnamon; wings black; median and greater wing-coverts and secondaries edged with yellow; some of the inner secondaries tipped with green; tail above, ashy gray with a black band some distance from the tip, but the median rectrices green and the next two partly green. "Legs and feet vary from lake-pink to coral-red; orbital skin pea-green; the irides vary from bright orange to yellowish red, with an inner, deep-blue ring more or less apparent; gape and base of upper mandible to nostril bright red; rest of bill pale yellowish, or greenish white, tipped with greenish." (*Hume.*) Two males from Palawan measure: Length, 250, 260; wing, 132, 136; tail, 89, 87; culmen from base, 20, 21; tarsus, 19.8, 20.

Adult female.—Differs from the male in having the mantle dark green like lower back; under tail-coverts buffy white with large pointed shaft-marks of dark green. A female from Palawan measures: Length, 250; wing, 130; tail, 84; culmen from base, 20; tarsus, 20.

"Two females measure: Length, 210; culmen, 20; wing, 130; tail, 74; tarsus, 20; middle toe with claw, 29. Iris with outer orange and inner brown ring; bill yellow, red at base of lower mandible." (*Bourns and Worcester MS.*)

Genus SPHENOCERCUS Gray, 1840.

This genus resembles *Osmotreron,* but it has a longer and more strongly graduated tail and the hard portion of the upper mandible is shorter.

12. **SPHENOCERCUS AUSTRALIS** McGregor.

SOUTHERN WEDGE-TAILED PIGEON.

Sphenocercus formosæ McGregor, Bull. Philippine Mus. (1904), 4, 9; McGregor and Worcester, Hand-List (1906), 9.
Sphenocercus australis McGregor, Phil. Jour. Sci. (1907), 2, sec. A, 344.

Pú-nay, Calayan; *a-ri-da-uang',* Batan.
Batan (*McGregor*); Calayan (*McGregor*); Camiguin N. (*McGregor*).

Adult male.—General color above olive-green, lighter and grayish on neck and sides of neck; crown ochraceous-buff; lower parts uniform green from chin to abdomen; middle of abdomen white, washed with pale yellow; sides blue-gray; flanks and thighs dark olive-green, mixed with fine lines of pale yellow; under tail-coverts pale yellowish (the longest buffy), each with a wide, dark olive-green shaft-mark; shoulders maroon connected by a maroon band across the back; primaries and secondaries black; secondaries and greater coverts with narrow margins of pale yellow; inner secondaries and tail dark green like back; tail black below with a narrow gray tip. Bill light blue, the tip whitish; skin about eye blue; inner ring of eye clear blue, outer ring pink, a dusky intermediate ring; legs dull carmine, nails pale blue. Length, about 355; three specimens measure: Wing, 188 to 197; tail, 125 to 130; exposed culmen, 19 to 20; tarsus, 24 to 27; middle toe with claw, 38 to 40.

Adult female.—Differs from the male in lacking the ochraceous of crown and the maroon of shoulders and back, the entire upper parts being green. Three specimens measure: Wing, 185 to 189; tail, 118 to 125; culmen, 19 to 19.5; tarsus, 24 to 27; middle toe with claw, 35.5 to 37.5.

This species is closely related to *Sphenocercus formosæ* and specimens of the two species should be compared. It is not uncommon in Calayan and Camiguin. We were first led to search for it by hearing its weird, prolonged cry which is remarkably like that of a child in pain. Having located the tree in which one of these birds was resting it was difficult to see the bird as its yellowish green under parts were in perfect harmony with the color of the leafy branches.

Genus OSMOTRERON Bonaparte, 1854.

Length, 280 to 305 mm.; colors largely yellow or olive-green; primaries black; secondaries and coverts with conspicuous yellow borders; tail nearly square, moderate in length; under tail-coverts very long, equaling or slightly exceeding rectrices; bill short and moderately stout; feathers covering proximal tarsal joint.

Species.

a^1. Tail green above.
  b^1. Smaller; green of neck and breast lighter and more tinged with yellow. **axillaris** (p. 27)
  b^2. Larger; green of neck and breast darker .... **everetti** (p. 28)
a^2. Tail bluish slate above with a subterminal black bar .... **vernans** (p. 28)

13. OSMOTRERON AXILLARIS (Bonaparte).

PHILIPPINE GREEN PIGEON.

Treron axillaris BONAPARTE, Compt. Rend. (1854), **39**, 875.
Osmotreron axillaris SALVADORI, Cat. Birds Brit. Mus. (1893), **21**, 48, pl. 4; SHARPE, Hand-List (1899), **1**, 54; MCGREGOR and WORCESTER, Hand-List (1906), 9.

Pú-nay, in general use.

Bantayan (*McGregor*); Basilan (*Steere Exp., Bourns & Worcester, McGregor*); Catanduanes (*Whitehead*); Cebu (*Everett, McGregor*); Dinagat (*Everett*); Guimaras (*Meyer, Murray, Steere Exp.*); Lubang (*McGregor*); Luzon (*Everett, Meyer, Whitehead, McGregor*); Masbate (*McGregor*); Mindanao (*Steere, Everett, Koch & Schadenberg, Steere Exp., Bourns & Worcester, Goodfellow, Celestino*); Mindoro (*Everett, McGregor, Porter*); Negros (*Meyer, Steere, Everett, Keay*); Panay (*Murray, Steere Exp., Bourns & Worcester*); Romblon (*McGregor*); Samar (*Whitehead*); Semirara (*Worcester*); Sibay (*Porter*); Siquijor (*Bourns & Worcester, Celestino*); Tablas (*Celestino*); Tawi Tawi (*Bourns & Worcester*); Ticao (*McGregor*); Verde (*McGregor*).

Adult male.—Top of head and a narrow band in front of mantle pearl-gray, darker on crown; mantle and lesser coverts rich maroon, forming a wide band across the back; rest of upper parts (except wings) and lower parts, except as beyond, yellowish green, duller and greener on neck and face, darker and richer on rump and tail-coverts, lighter and yellower on lower parts; flanks and thighs dark olive-green; under tail-coverts white, their tips light yellow; wings black; inner secondaries and median and greater coverts edged with clear lemon-yellow; outer secondaries edged with pale straw-yellow; tail black below with a wide, gray terminal band. Iris light glistening blue; bill dark red at base, bluish beyond nostrils; feet and nails lead-blue. Length, 280 to 305; three males measure: Wing, 153 to 158; tail, 98 to 100; culmen from base, 20 to 23; tarsus, 23 to 24.

Adult female.—Somewhat similar to the male but general coloration darker and greener; edging of wing-coverts paler; maroon of mantle and wings and gray band in front of mantle wanting; under tail-coverts with narrow, dark-green shaft-lines. A female from Lubang measures: Wing, 165; tail, 104; culmen from base, 21; tarsus, 22.

This very showy dove is usually found feeding in fruit trees and often in company with the smaller, congeneric species, *O. vernans*, but the latter is a much rarer bird.

14. OSMOTRERON EVERETTI Rothschild.

EVERETT'S GREEN PIGEON.

Osmotreron axillaris SALVADORI, Cat. Birds Brit. Mus. (1893), **21**, 48 (part).
Osmotreron everetti ROTHSCHILD, Nov. Zool. (1894), **1**, 41; McGREGOR and WORCESTER, Hand-List (1906), 9.

Bongao (*Everett*); Meimbun (*Everett?*); Sibutu (*Everett*); Sulu (*Burbidge, Guillemard, Everett*).

"*Osmotreron everetti* resembles *O. axillaris* from the Philippines, but is altogether a larger bird; the purplish chestnut mantle is bordered above by a very conspicuous interscapulary band of lavender-gray, of the same color as the crown; this color is of a lighter shade than in *O. axillaris* and the interscapulary band is much less distinct and not so pure gray in the latter. In *O. everetti* the green of the neck and breast is a shade lighter and more tinged with yellow, the abdomen paler and more grayish along the middle. Length, about 279; wing, 161 to 165 (♀ 162 to 165); tail, 91 to 92; bill, 19; tarsus, 23. 'Iris greenish silvery' (*Everett*); 'iris pearly green; bill red at base, blue at tip; feet pale slate.' (*Guillemard.*) I have no female of true *O. axillaris* to compare, but the female of *O. everetti* seems to be the larger, and the mantle much darker olive." (*Rothschild.*)

I have seen no specimens of Everett's green pigeon.

15. OSMOTRERON VERNANS (Linnæus).

PINK-NECKED GREEN PIGEON.

Columba vernans LINNÆUS, Mantissa Plantarum (1771), 526.
Osmotreron vernans SALVADORI, Cat. Birds Brit. Mus. (1893), **21**, 60; SHARPE, Hand-List (1899), **1**, 54; OATES, Cat. Birds' Eggs (1901), **1**, 83; McGREGOR and WORCESTER, Hand-List (1906), 9.

Pú-nay, in general use.

Bantayan (*McGregor*); Basilan (*Everett, Bourns & Worcester, McGregor*); Bohol (*Everett, McGregor*); Calamianes (*Bourns & Worcester, McGregor*); Cebu (*Everett, McGregor*); Guimaras (*Steere Exp., Bourns & Worcester*); Luzon (*Meyer, Heriot, Steere Exp., McGregor*); Masbate (*Bourns & Worcester*); Mindanao (*Everett, Steere Exp., Bourns & Worcester, Goodfellow*); Mindoro (*McGregor, Porter*); Negros (*Bourns & Worcester, Keay*); Palawan (*Everett, Platen, Whitehead, Steere Exp., Bourns & Worcester, White*); Panay (*Steere, Steere Exp., Bourns & Worcester*); Siasi (*Guillemard*); Sibay (*Porter*); Siquijor (*Steere Exp., Bourns & Worcester, Celestino*). Celebes, Malay Peninsula, Indo-Malay Islands, Indo-Chinese provinces.

Adult male.—Head, chin, and upper throat blue-gray, darkest on crown; forehead, sides of face, chin, and throat faintly greenish; neck all round and sides of head behind eye lavender-gray, forming a narrow band on hind neck and a wide patch on lower throat, followed by a patch of deep orange on breast; lower breast and abdomen yellowish green, clear lemon-yellow on middle of belly; sides and lining of wing blue-gray; flanks and thighs dark olive-green, the latter streaked with light lemon-yellow; under tail-coverts chestnut; back, rump, mantle, and secondary-coverts dull gray-green, richer green on the coverts; upper tail-coverts like rump but with a faint chestnut wash; primaries, alula, primary-coverts, and outer secondaries black; some of the primaries and secondaries edged with yellow; greater coverts broadly margined with pale yellow, forming a conspicuous band; rectrices slate-gray above, each with a black subterminal band and washed with green near the base; rectrices blackish below with narrow slate-gray tips. Base of bill black, tip pale blue; iris light yellow; legs and feet coral-pink. Salvadori quotes the following iris colors from Davidson: "Irides with three rings, the outer one rose-pink, the next prussian-blue, the innermost ultramarine-blue." Length, 280; wing, 147; tail, 92; culmen from base, 19; tarsus, 23.

Adult female.—Nearly all green; somewhat similar to the male but darker green above; the lavender wanting on head and neck, and orange wanting on breast, these parts being dark green: under tail-coverts pale yellow, more or less washed with cinnamon on inner webs. One female from Mariveles, Bataan Province, measures: Length, 280; wing, 148; tail, 93; culmen from base, 19; tarsus, 22.

"*Young male.*—Resembles the female, but with some trace of the vinaceous purple color on the neck, and of the brown-orange on the breast.

"*Young female.*—Has the rufescent color of the upper tail-coverts scarcely visible, and the central tail-feathers more or less tinged with green.

"Some specimens have the forehead and throat more or less tinged with greenish, but they are not confined to a particular locality. I have seen in the Museum of Paris a variety entirely of a canary-yellow." (*Salvadori.*)

"Its nest is a mere platform of twigs, grass-stems, tendrils, and leaves, measuring about 180 mm. in breadth. The eggs are nearly oval in form, pure white in color, and measure 31 by 24." (*Bourns and Worcester MS.*)

Genus PHAPITRERON Bonaparte, 1854.

Length, 230 to 280 mm.; sexes alike in color; colors nearly uniform brown of various shades; a wide iridescent band on neck; primaries neither scooped not cut; rectrices graduated and rounded and with gray tips; under tail-coverts gray or dark buff. Birds of this genus are closely related inter se, *maculipectus* alone showing a slight departure from the type in its mottled breast. The species fall naturally into two groups which might take the rank of subgenera were anything to be gained thereby. The first five species (see key to species), the *amethystina* group are rare deep-woods birds: their colors are generally darker brown than those of the *leucotis* group and the bill is noticeably longer and heavier, being longer than tarsus. The five species of the *leucotis* group are fairly common in their respective ranges; they are to be found in more open country or even on the borders of rice-fields; in this group the tarsus equals, or is slightly greater than, the culmen.

Species.

- a^1. Culmen more than 19 mm.; longer than tarsus.
  - b^1. Breast not mottled.
    - c^1. Under tail-coverts cinnamon or ocherous-brown.
      - d^1. Breast brown; wing longer.................................... **amethystina** (p. 30)
      - d^2. Breast pearly ash; wing shorter.............................. **brunneiceps** (p. 32)
    - c^2. Under tail-coverts ashy gray.
      - d^1. Under tail-coverts not tipped with fulvous................ **cinereiceps** (p. 31)
      - d^2. Under tail-coverts slightly tipped with fulvous.............. **frontalis** (p. 32)
  - b^2. Breast distinctly mottled.. **maculipectus** (p. 33)
- a^2. Culmen less than 17 mm.; equal to or less than tarsus.
  - b^1. Forehead gray or fulvous, not white.
    - c^1. Throat and cheeks deep ruddy fulvous.
      - d^1. Throat darker; occiput dull amethystine-rufous............ **leucotis** (p. 33)
      - d^2. Throat lighter; occiput bright coppery amethystine.. **occipitalis** (p. 34)
    - c^2. Throat and cheeks pale fulvous.
      - d^1. Forehead grayish; light streak under eye fulvous........ **nigrorum** (p. 35)
      - d^2. Forehead pale fulvous; light streak under eye white. **brevirostris** (p. 35)
  - b^2. Forehead and chin pure white.. **albifrons** (p. 36)

16. PHAPITRERON AMETHYSTINA Bonaparte.

AMETHYSTINE BROWN PIGEON.

Phapitreron amethystina BONAPARTE, Consp. Gen. Avium (1854), **2**, 28: Compt. Rend. (1855), **40**, 214; MCGREGOR and WORCESTER, Hand-List (1906), 10.

Phabotreron amethystina WALDEN, Trans. Zool. Soc. (1875), **9**, 214, pl. 34, fig. 2; SALVADORI, Cat. Birds Brit. Mus. (1893), **21**, 66; SHARPE, Hand-List (1899), **1**, 55.

Bohol (*McGregor*); Dinagat (*Everett*); Leyte (*Steere Exp.*); Luzon (*Meyer, McGregor*); Mindanao (*Everett, Goodfellow, Celestino*); Panaon (*Everett*); Samar (*Steere Exp., Whitehead*).

Adult.—A black line below eye from gape to neck; below this a line of white mixed with reddish brown; general color above dark brown, lighter on forehead and fore crown; bird held toward the light, neck and its sides, beautiful, iridescent purple and violet-blue; wing-coverts, back, rump, and tail-coverts, dark glossy green; bird held away from the light, neck and sides of neck blue or deep violet; wings, back, tail, and its coverts washed with purple; below uniform light brown except middle of abdomen and tail-coverts which are dark buff; tail dark brown with a broad, apical, gray band, the middle pair of rectrices do not show this band from above. Iris light brown; bare skin about eyes dark, dirty red; bill black; legs and feet bright carmine; nails horn-colored. Length, about 255. In a male from Bataan Province, Luzon, the wing is 140; tail, 99; culmen, 23; tarsus, 20.5. Salvadori gives the following measurements: Wing, 146; tail, 78; bill, 22; tarsus, 22.

"A rare bird in the few islands where it is found. Legs dull pink; iris dark brown; feet dark pink; nails brown; bill black. Length, 292; wing, 145; tail, 97; culmen, 25; tarsus, 21; middle toe with claw, 30." (*Bourns and Worcester MS.*)

17. **PHAPITRERON CINEREICEPS** Bourns and Worcester.

GRAY-HEADED PIGEON.

Phabotreron cinereiceps BOURNS and WORCESTER, Minnesota Acad. Nat. Sci. Occ. Papers (1894), 1, 8; SHARPE, Hand-List (1899), 1, 55.

Phapitreron cinereiceps McGREGOR and WORCESTER, Hand-List (1906), 10.

Tawi Tawi (*Bourns & Worcester*).

"*Adult.*—Top of head, nape, and sides of neck clear ashy gray, slightly washed with rufous on forehead; hind neck amethystine as in *P. amethystina;* back, rump, and upper tail-coverts brown with bronze reflections, the tail-coverts slightly more ruddy than back; four outer pairs of tail-feathers dark brown, lighter at base; two central pairs ruddy brown with bronze reflections; all the tail-feathers with ashy tips which form a distinct terminal band 6 mm. in width; shafts of tail-feathers black; wing-coverts and secondaries uniform with back; primaries dark brown, the first five sharply edged with rusty brown on outer web; a narrow black stripe under eye; sides of face, ear-coverts, fore neck, and breast rich ruddy brown, the breast with a slight metallic gloss; chin and throat lighter; abdomen and thighs fulvous brown; flanks darker with slight metallic wash; under tail-coverts clear ashy gray; shafts of tail-feathers with basal half black, apical half white; under surface of tail nearly black, the terminal gray band distinct and wider than on upper surface, measuring 15 mm. on outer pair of feathers; under wing-coverts and axillars like the flanks; under surface of quills uniform dark brown. Bill black; legs and feet dirty purplish; nails black; iris in one specimen bright yellow, in another orange-red. Length, 260; wing, 134; tail, 99; culmen, 20; tarsus, 18. Sexes alike." (*Bourns and Worcester.*)

This species is known from the types only.

18. **PHAPITRERON BRUNNEICEPS** Bourns and Worcester.

BROWN-HEADED PIGEON.

Phabotreron brunneiceps BOURNS and WORCESTER, Minnesota Acad. Nat. Sci. Occ. Papers (1894), **1**, 9; SHARPE, Hand-List (1899), **1**, 55.
Phapitreron brunneiceps McGREGOR and WORCESTER, Hand-List (1906), 10; McGREGOR, Phil. Jour. Sci. (1907), **2**, sec. A, 281.

Basilan (*Bourns & Worcester, McGregor*).

"*Adult.*—Above dark brown with greenish reflections; amethystine spot on hind neck less blue than in *P. amethystina:* top of head brown, forehead slightly lighter and nape slightly darker than crown; sides of face and ear-coverts brown, paler than crown; a narrow, dark brown streak under eye; chin and throat grayish fulvous; breast pearly ash; abdomen, flanks, thighs, and under tail-coverts ochraceous-brown; under surface of tail brownish black with a broad, gray, terminal band; under wing-coverts and axillars fulvous-brown; primaries with sharply defined light edges on upper web; below slightly more ashy; tail-feathers brown above with distinct terminal bands of gray, central pair with slight metallic gloss; shafts of quills black above and below except the terminal 15 mm. which are white. Bill black; feet dark pink; nails brown; iris orange-red. Length, 255; wing, 132; tail, 89; culmen, 24; tarsus, 18. A well-defined species distinguished from *P. amethystina* by its smaller size and the entirely different color of its under surface." (*Bourns and Worcester.*)

This species is very distinct from *P. amethystina* being smaller and differently colored. A male measures: Length, 267; wing, 135; tail, 100; culmen from base, 25.

19. **PHAPITRERON FRONTALIS** Bourns and Worcester.

CEBU AMETHYSTINE PIGEON.

Phabotreron frontalis BOURNS and WORCESTER, Minnesota Acad. Nat. Sci. Occ. Papers (1894), **1**, 10; SHARPE, Hand-List (1899), **1**, 55.
Phapitreron frontalis McGREGOR and WORCESTER, Hand-List (1906), 10.

Cebu (*Bourns & Worcester*).

"*Adult.*—General color of upper surface as in *P. brunneiceps* but forehead and crown lighter, nape washed with ashy gray, and lacking metallic gloss; tail glossed with dull bronze instead of amethystine and the terminal band less strongly marked than in *brunneiceps;* under surface much as in *brunneiceps* but everywhere darker; under tail-coverts ashy gray, slightly tipped with fulvous; tail much as in *brunneiceps*, the outer web of outer pair of feathers being, however, light brown; basal half of shafts dirty whitish; apical fourth white, rest brown. Iris pale orange; bill black; legs and feet purple; nails light brown. Sexes alike. Length, 260; wing, 140; tail, 100; culmen, 51; tarsus, 21." (*Bourns and Worcester.*)

The length of culmen given above (2 inches in original description) is undoubtedly an error.

20. **PHAPITRERON MACULIPECTUS** Bourns and Worcester.

MOTTLED AMETHYSTINE PIGEON.

Phabotreron maculipectus BOURNS and WORCESTER, Minnesota Acad. Nat. Sci. Occ. Papers (1894), **1**, 10; SHARPE, Hand-List (1899), **1**, 55; GRANT, Ibis (1896), 563.

Phapitreron maculipectus McGREGOR and WORCESTER, Hand-List (1906), 10.

Negros (*Bourns & Worcester, Whitehead*).

"*Adult male.*—Upper surface exactly as in *P. amethystina* except that the primaries are slightly darker; dark brown stripe under eye extending from gape through ear-coverts to hind neck; below this a white stripe and a second shorter dark stripe below the latter; cheeks fulvous brown; chin and throat more ruddy brown; breast clear ashy gray, each feather having an edging distinctly lighter than its center, producing a beautiful mottled appearance; feathers on center of fore breast washed with brown and forming a distinct patch; feathers of abdomen lack the dark centers, and their edges washed with light brown; thighs and under tail-coverts cinnamon-brown, much lighter than in *P. amethystina;* under surface of tail-feathers dark brown, nearly black, with faint metallic gloss and a broad, gray, terminal band; shafts of feathers black changing to white at tips; under surface of wing and axillars uniform fulvous brown. Bill black; feet dark pink; nails dark brown, nearly black. Wing, 145; tail, 115; culmen, 26; tarsus, 20. Length not taken from birds in flesh. This beautiful species was obtained in the Island of Negros on the mountains of the interior, where it is by no means common. It is distinguished from all the other species of the genus by its fine mottled breast." (*Bourns and Worcester.*)

21. **PHAPITRERON LEUCOTIS** (Temminck).

NORTHERN WHITE-EARED PIGEON.

Columba leucotis TEMMINCK, Pl. Col. (1823), 189.

Phabotreron leucotis SALVADORI, Cat. Birds Brit. Mus. (1893), **21**, 67; SHARPE, Hand-List (1899), **1**, 55; OATES, Cat. Birds' Eggs (1901), **1**, 83.

Phapitreron leucotis McGREGOR and WORCESTER, Hand-List (1906), 10; McGREGOR, Bur. Govt. Labs. Manila (1905), **34**, 6, pl. 3 (nest).

Geopelia striata GRANT and WHITEHEAD, Ibis (1898), 246 (eggs)! error.

Ba-to ba-to tu-loc, Manila; *cu-lu-cu-luc*, Lubang.

Catanduanes (*Whitehead*); Luzon (*Meyer, Heriot, Everett, Steere Exp., Whitehead, McGregor*); Mindoro (*Steere Exp., Bourns & Worcester, Everett, McGregor, Porter*).

Adult.—A black line from gape to nape below eye; below this a white line from opposite the posterior border of eye to nape; above, general color brown; forehead and crown dark gray; below brown; chin, upper throat, and cheeks ruddy fulvous; lower breast and abdomen slightly ochraceous, much paler posteriorly; under tail-coverts dark pearl-gray; wings brown; primaries with pale edges; rectrices brown, each with a wide, terminal, gray band. Metallic reflections; specimen held toward the light, occiput, neck, sides of neck, throat, breast, sides of body, and flanks bronze-green; a blue collar on hind neck and a blue band across interscapulars; back, rump, and wing-coverts touched with purple; when specimen is held away from the light the blue bands change to green; the green of neck and lower parts becomes purple; the back, wing-coverts, tail-coverts, and rectrices are touched with violet and dark purple. Iris varies, usually mottled pinkish surrounded by a narrow white ring or a pale blue ring; bill black; legs carmine; nails horn-brown. Length, about 235. Three males average: Wing, 134; tail, 81; culmen from base, 18; tarsus, 20.

Four eggs taken by Whitehead at Cape Engaño in May, 1895, are "glossy and measure from 26.5 to 28.5 in length, and from 19.5 to 20 in breadth." (*Oates.*)

"Fairly common in deep woods. Breeds in April. Legs and feet deep pink; nails brown. Length, 260; wing, 127; tail, 95; tarsus, 19; middle toe with claw, 29." (*Bourns and Worcester MS.*)

This species is fairly abundant in the islands where it occurs. Several nests were found in Mindoro; they were constructed of twisted plant tendrils which material gave the nests the appearance of being made of spiral springs. The nest was invariably placed in a small tree and rested on a horizontal branch at from 2 to 6 meters from the ground. Eggs and nestlings were found from April 8 to May 6.

22. PHAPITRERON OCCIPITALIS Salvadori.

BASILAN WHITE-EARED PIGEON.

Phabotreron occipitalis SALVADORI, Cat. Birds Brit. Mus. (1893), **21**, 68; SHARPE, Hand-List (1899), **1**, 55.

Phapitreron occipitalis MCGREGOR and WORCESTER, Hand-List (1906), 10.

Basilan (*Everett, Steere Exp., Bourns & Worcester, McGregor*).

Adult (*sexes similar*).—"Similar to *P. leucotis*, but the rufous throat more vinous, and the occiput of a coppery amethystine, very conspicuous: the back and wings of a more greenish hue. 'Iris light warm brown; bill black; feet carmine.' (*Everett.*) Length, about 230; wing, 127; tail, 91; bill, 15; tarsus, 20." (*Salvadori.*)

"Iris purple; legs and feet dark pink; nails brown; bill black. Length, 250; wing, 126; tail, 86; culmen, 18; tarsus, 18.5; middle toe with claw, 28. Abundant in Basilan. A deep woods bird." (*Bourns and Worcester MS.*)

23. **PHAPITRERON NIGRORUM** Sharpe.

NEGROS WHITE-EARED PIGEON.

Phabotreron nigrorum SHARPE, Trans. Linn. Soc. Zool. (1877), **1**, 346, 353; Hand-List (1899), **1**, 55; SALVADORI, Cat. Birds Brit. Mus. (1893), **21**, 68.

Phapitreron nigrorum McGREGOR and WORCESTER, Hand-List (1906), 10.

Tuc-mó, Masbate, Ticao, and in general use.

Cebu (*Everett, Steere Exp., Bourns & Worcester, McGregor*); Guimaras (*Meyer, Steere Exp.*); Masbate (*Bourns & Worcester, McGregor*); Negros (*Layard, Steere, Steere Exp., Bourns & Worcester, Keay*); Panay (*Steere Exp., Bourns & Worcester*); Sibuyan (*Bourns & Worcester, McGregor*); Tablas (*Bourns & Worcester*); Ticao (*McGregor*).

Adult.—Very similar to *Phapitreron leucotis* but smaller; chin, sides of face, and upper throat much paler; the white line on auricular region replaced by a wider line of pale fulvous from bill to nape. Bill black; iris gray; legs dark scarlet; nails brown. Four specimens, two of each sex, measure: Wing, 119 to 124 (122); tail, 90 to 96.5 (94); culmen from base, 17 to 18 (17.5); tarsus, 16.5 to 18 (17.5).

"Very common in the forests of the central Philippines. Iris dark brown; legs and feet dark pink; nails leaden; bill black. Length, 229 to 250; wing, 119 to 127; tail, 84 to 96; culmen, 17 to 19; middle toe with claw, 26 to 29." (*Bourns and Worcester MS.*)

24. **PHAPITRERON BREVIROSTRIS** Tweeddale.

SHORT-BILLED PIGEON.

Phabotreron brevirostris TWEEDDALE, Proc. Zool. Soc. (1877), 549; Challenger Report (1881), **2**, Zool. pt. 8, pl. 6; SALVADORI, Cat. Birds Brit. Mus. (1893), **21**, 69; SHARPE, Hand-List (1899), **1**, 55.

Phapitreron brevirostris McGREGOR and WORCESTER, Hand-List (1906), 10.

Dinagat (*Everett*); Leyte (*Everett, Steere Exp., Whitehead*); Mindanao (*Murray, Everett, Koch & Schadenberg, Goodfellow, Clemens, Celestino*); Samar (*Steere Exp., Bourns & Worcester, Whitehead*); Siquijor (*Bourns & Worcester*); Sulu (*Guillemard*).

"Similar to *P. leucotis*, from which it differs in having the forehead and throat grayish fulvous, the occiput constantly amethystine, and the rectrices with a decided amethystine tinge; it resembles also *P. nigrorum*, especially as regards the coloring of the forehead and throat, but it differs in having the subocular streak white and the occiput more amethystine. Length, about 240; wing, 124; tail, 99; bill, 13; tarsus, 19." (*Salvadori.*)

"It seems to us that there must be something wrong about the Sulu record of *P. brevirostris*. We obtained no pigeons of the *P. leucotis* type in Sulu, and the single specimen obtained by us in Tawi Tawi has been lost or destroyed, so that we are unable to identify it, but it would be indeed remarkable if *P. brevirostris* should give way to *P. occipitalis* in

Basilan only to reappear in Sulu. In the face of Count Salvadori's identification of Guillemard's specimen, however, we have nothing to say.

"Iris purple; legs and feet deep purple; nails brown. Five birds from Samar and Siquijor average: Length, 235; wing, 122; tail, 83; culmen, 19; tarsus, 19; middle toe with claw, 26. A female from Mindanao is larger, measuring: Length, 250; wing, 127; tail, 94; culmen, 17; tarsus, 19; middle toe with claw, 28." (*Bourns and Worcester MS.*)

25. PHAPITRERON ALBIFRONS McGregor.

BOHOL WHITE-EARED PIGEON.

Phabotreron brevirostris SALVADORI, Cat. Birds Brit. Mus. (1893), **21**, 69 (part).

Phapitreron albifrons McGREGOR, Phil. Jour. Sci. (1907), **2**, sec. A, 317.

Li-mú-con, Bohol.

Bohol (*Steere Exp.*, *McGregor*); Siquijor (*Bourns & Worcester*, *Celestino*).

Adult male (*type*).—General color brown, much darker above, with iridescent reflections most pronounced on nape, mantle, and breast; merging rather abruptly into dark gray of crown; occiput, nape, and sides of head ruddy brown; from gape a narrow brown line passing below eye with a wider white line underneath, both lines reaching beyond ear-coverts; chin white, gradually changing to gray on throat and ochraceous on breast and abdomen; under tail-coverts and a wide band at end of tail pale french-gray; wings uniform with the back; primaries with a narrow light brown edge on outer webs; with the bird held toward the light the occiput and nape are glossed with green, followed by a patch of metallic blue, this followed on interscapulars by a wide band of metallic green extending to sides of neck and narrowly bordered behind by blue; the wings and remaining upper parts have a dull green gloss; with the bird held away from the light the green changes to purple and this metallic color shows also on throat, breast, and sides of neck. Length, 234; wing, 122; tail, 81; culmen from base, 16; tarsus, 17.

Female.—Similar to the male. In this species the terminal half of bill is black; basal half of bill, skin around eyes, and feet dull crimson; iris brown; nails gray.

Egg.—A hard-shelled egg was taken from a female killed on June 7, 1906; another egg, obtained in the same manner four days later, measures 27 by 21 and is pure white in color.

This species is most closely related to *P. brevirostris* but it differs in having a white forehead and brown subocular line.

Subfamily PTILOPODINÆ.

Forest inhabiting pigeons of medium size; upper surface rich green; no band across lower back.

Genera.

a^1. First primary abruptly attenuated.
  b^1. Tail rather long; pectoral feathers not bifurcated.......... **Leucotreron** (p. 37)
  b^2. Tail moderate; pectoral feathers bifurcated.................. **Lamprotreron** (p. 40)
a^2. First primary not so abruptly attenuated: slightly narrowed at tip. **Spilotreron** (p. 41)

Genus LEUCOTRERON Bonaparte, 1854.

First primary with both webs greatly reduced in width near the tip; tail square; tarsus feathered for more than half its length. Forest inhabiting pigeons of medium size.

Species.

a^1. Larger, length, 330 mm. or more; under tail-coverts green or gray, broadly edged with buff.
  b^1. Secondaries uniform green.. **occipitalis** (p. 37)
  b^2. Secondaries with a conspicuous red patch................................ **marchei** (p. 38)
a^2. Smaller, length, 300 mm. or less; under tail-coverts uniform, dark cinnamon. **leclancheri** (p. 39)

26. LEUCOTRERON OCCIPITALIS (Bonaparte).

YELLOW-BREASTED FRUIT PIGEON.

Ramphiculus occipitalis BONAPARTE, Consp. Gen. Avium (1854), **2**, 17.
Xenotreron incognita TWEEDDALE, Proc. Zool. Soc. (1877), 832.
Ptilopus occipitalis SALVADORI, Cat. Birds Brit. Mus. (1893), **21**, 72.
Leucotreron occipitalis SHARPE, Hand-List (1899), **1**, 55; MCGREGOR and WORCESTER, Hand-List (1907), 10.

Basilan (*Everett, Steere Exp., McGregor*); Cebu (*Everett, Bourns & Worcester, McGregor*); Leyte (*Steere Exp.*); Luzon (*Meyer, Steere Exp., Whitehead, McGregor*); Mindanao (*Everett, Steere Exp., Goodfellow*); Mindoro (*Bourns & Worcester, McGregor*); Negros (*Whitehead*); Samar (*Bourns & Worcester*); Sibuyan (*McGregor*).

Adult (*sexes alike*).—Forehead pale gray with a yellow wash, blending into light slate-gray mixed with green on center of crown; on back of head a wide band of dark purple or deep cherry-red, extending over ear-coverts and sides of face below the eyes; remainder of upper parts, including wings and tail, nearly uniform, rich green; rectrices and quills partly blue when held toward the light; whole upper parts slightly bronze away from the light; feathers of chin and upper throat white with a yellow wash on tips; lower throat and sides of neck and breast light gray; breast covered by a large oval patch of old-gold-yellow, just behind this a broad band of deep purple; middle of abdomen pearl-gray and white; sides and flanks green; under tail-coverts light buff, the inner webs largely green; rectrices gray below with light gray tips, above very narrowly edged with light ocherous; some of the primaries and secondaries narrowly edged with buff; tips of the green tarsal feathers reaching toes. A male from Sibuyan measures: Length, 340; wing, 160; tail, 115; culmen from base, 18; middle toe with claw, 35. A male from Basilan: Wing, 148; tail, 115; culmen from base, 18; middle toe with claw, 33. A female from Mindoro: Length, 320; wing, 153; tail, 113; culmen from base, 19; middle toe with claw, 34.

Young.—The immature bird differs from the adult in having top of head, neck, and sides of face uniform green (or with a few purple feathers) and the yellow and purple areas of breast indicated by a few scattered feathers of these colors. The first primary is attenuated but not so abruptly cut on inner web as it is in the adult. In a young female from Sibuyan the bill was dull red at base; tip brown; feet pink; nails black.

27. LEUCOTRERON MARCHEI (Oustalet).

MARCHE'S FRUIT PIGEON.

Ptilopus (*Rhamphiculus*) *marchei* Oustalet, Le Naturaliste (1880), 324.
Ptilopus marchei Salvadori, Cat. Birds Brit. Mus. (1893), 21, 75; Grant, Ibis (1895), 1, 468; Whitehead, Ibis (1899), 486.
Leucotreron marchii Sharpe, Hand-List (1899), 1, 55.
Leucotreron marchei McGregor and Worcester, Hand-List (1906), 10.

Luzon (*Marche, Whitehead, Worcester*).

"*Adult male.*—Entire top of head dull crimson-red, the same color being continued down the sides of the cheeks, on either side of the throat; feathers surrounding the eye light red; hind cheek and ear-coverts dusky black; back and sides of the neck and upper part of the breast pearl-gray, forming a collar which completely separates the dull crimson crown from the dusky black mantle and back; wings like the back, but with green reflections; lower back, rump, and upper tail-coverts bronze-brown with green reflections; primary quills black, finely edged with pale yellow; the two outer secondaries are similarly margined, the remainder edged with crimson along the middle of the outer web, the crimson barbs being loose and free and forming a large patch on the wing; tail bronze-brown, broadly edged with brownish gray, beneath dark gray tipped with whitish; chin and middle of throat brownish buff; in the center of the gray breast a large patch of bright orange-vermilion washed with lake, shading into deep red-lake below; this is followed by a patch of creamy white; rest of under parts dull pearly gray, most of the feathers finely edged with creamy yellow; under tail-coverts buff, with brownish gray centers. 'Eye: inner ring yellow, outer lake-red; bill at base brick-red, tipped with yellow; feet deep coral-red.' (*Whitehead.*) Length, 400; wing, 180; tail, 129; tarsus, 32.

"*Adult female.*—Similar to the male, but crown of a less crimson tinge; lower part of the back, rump, and tail bronze-green, distinctly greener than in the male; upper part of the breast-patch orange-red without the crimson wash. Length, 373; wing, 173; tail, 114; tarsus, 29.

"*Young male.*—The whole of the upper parts is brownish bronze shot with green; the dull crimson of the top of the head and the free crimson webs of the secondaries are just beginning to make their appearance; the whole of the feathers of the chest and upper breast are gray, widely tipped with bronze-green, the only patches of pure gray feathers being visible on each side of the neck. The orange-red breast-patch is represented by a deep orange feather in the middle of the chest and some dark carmine feathers. Otherwise the rest of the plumage is much like that of the adult." (*Grant.*)

Marche's fruit pigeon was described in 1880 from a single specimen which remained unique for fifteen years when Whitehead rediscovered the species in Lepanto. So far as we at present know, this species is confined to this subprovince and the neighboring subprovince of Bontoc. The Igorots say that at certain seasons of the year these birds become very fat and heavy and that they are then taken by pursuing them until they are exhausted. This account is probably correct as the specimens seen in the possession of the Igorots are not injured, while birds taken in snares or with bird-lime are seldom fit for specimens. This species may be recognized at once by the large red patch on the secondaries. In 1903 a pigeon, probably of this species, was killed in Bontoc by the Hon. Dean C. Worcester but the skin was lost.

28. **LEUCOTRERON LECLANCHERI** (Bonaparte).

BLACK-CHINNED FRUIT PIGEON.

Trerolæma leclancheri Bonaparte, Compt. Rend. (1855), **41**, 247.
Leucotreron gironieri Walden, Trans. Zool. Soc. (1875), **9**, 213, pl. 34, fig. 1.
Ptilopus leclancheri Salvadori, Cat. Birds Brit. Mus. (1893), **21**, 79.
Leucotreron leclancheri Sharpe, Hand-List (1899), **1**, 56; McGregor and Worcester, Hand-List (1906), 10.

Ca-pil'-la, Manila.

Bantayan (*McGregor*); Batan (*McGregor*): Bohol (*McGregor*); Cagayancillo (*McGregor*); Calamianes (*Bourns & Worcester*); Calayan (*McGregor*); Camiguin N. (*McGregor*); Catanduanes (*Whitehead*); Cebu (*Burger*); Guimaras (*Meyer*); Lubang (*McGregor*); Luzon (*Meyer; Steere Exp., Whitehead, McGregor*); Mindoro (*McGregor, Porter*); Negros (*Everett, Steere Exp.*); Palawan (*Everett, Platen, White*); Panay (*Meyer*); Romblon (*McGregor*); Samar (*Whitehead*); Semirara (*Worcester*); Sibuyan (*McGregor*); Tablas (*Bourns & Worcester*).

Adult male.—Chin black; head, neck, throat, and breast pearl-gray, washed with dull green on occiput and hind neck, washed with ocherous yellow on throat and crop; remainder of upper parts green, brightest on wings and tail, the latter tipped with dull yellowish brown; primaries edged with white near their tips; some of the secondaries edged with ocherous-yellow; behind the gray of breast a dark chestnut band, blackish on its anterior border; middle of abdomen white, washed with cinnamon or in some specimens with yellowish buff; under tail-coverts cinnamon;

rectrices below, brown with gray tips; remainder of under parts dull green. Iris bright red; bill bright yellow; base of lower mandible, and feet dark crimson; nails dark brown. Length, 280 to 305; measurements of three specimens give: Wing, 144 to 145; tail, 104 to 105; culmen from base, 19 to 20; tarsus, 18 to 20.

Adult female.—Forehead blue-gray; chin black; throat and breast green; dark chestnut pectoral-band, and other parts, as in the male. A female from Sibuyan has the wing, 145, and tail, 104; a female from Calayan is larger; wing, 157; tail, 114.

Young.—Green, chin cinnamon; pectoral-band wanting or indicated by a few chestnut feathers; abdomen white or washed with buff; under tail-coverts slightly paler than in the adult.

Leclancher's pigeon is generally found in forest and, although widely distributed, it does not occur in great numbers, except when feeding in fruit trees; it appears to be strictly arboreal in habits. Specimens from Camiguin, Calayan, and Batan are considerably larger than specimens from more southern islands. The nest as observed in Camiguin, north of Luzon, was a slight platform of twigs placed on a horizontal branch at from 1.5 to 4.5 meters from the ground. Four nests contained but one egg each. Three eggs are white in color and measure, respectively: 35 by 23, 35 by 25, and 31 by 24.

Genus LAMPROTRERON Bonaparte, 1854.

Lamprotreron is distinguished from all other Philippine genera by having the breast-feathers bifurcated, as if the tip of the shaft had been cut off of each feather.

29. LAMPROTRERON TEMMINCKI (Prevost and Des Murs).

TEMMINCK'S FRUIT PIGEON.

Kurukuru temminckii PREVOST and DES MURS, Voy. Venus, Zool. (1849), 234.

Ptilopus temmincki SALVADORI, Cat. Birds Brit. Mus. (1893), **21**, 115; MEYER and WIGLESWORTH, Bds. Celebes (1898), **2**, 613.

Lamprotreron temmincki SHARPE, Hand-List (1899), **1**, 58; MCGREGOR and WORCESTER, Hand-List (1906), 11.

Ptilopus formosus GUILLEMARD, Proc. Zool. Soc. (1885), 269.

Sulu (*Guillemard*). Celebes.

"*Adult male.*—General color above parrot-green, the inner wing-coverts, scapulars, and inner quills with an oval black spot near the ends; entire head above aster-purple; hind neck and sides of neck dragon's-blood-red, shading off into the green of the mantle; sides of occiput and ear-coverts green, becoming gray on malar region, chin, throat, and jugulum; the upper breast rose-purple, the feathers on chest and jugulum forked at the tip (as if the middle part of the web had been cut out with scissors); passing on lower breast into a broad band of blackish plum-purple; on and near the carpal edge a large spot of this color; sides, thighs, and flanks green, thighs grayer, flanks tipped with naples-yellow; abdomen and under tail-coverts yellowish white, the inner webs of the latter partly green; center tail-feathers above green, grayish at tip, all the lateral tail-feathers blackish, tipped with gray, washed with green; tail below dusky grayish, terminal bar whitish; quills above black, washed externally with green, finely edged with yellowish; wings below slaty, the first primary much attenuated for about 2 cm. and incurved.

"*Adult female.*—Above all parrot-green, except for a patch of aster-purple on crown and occiput, and purplish black spots on the scapulars and inner-coverts; breast green, without rose-purple and the dark plum-purple band of the male.

"*Immature male.*—Closely resembling the female; forehead green with the purple feathers of the crown intermingled; dark purple breast-band commencing to form; breast grayer than in the female.

"*Young in first plumage.*—Bright parrot-green, the wing-coverts and secondaries broadly margined with light yellow, the back, rump, and scapulars, and breast more finely margined with yellow: remaining under parts much as in the female; tail tipped with yellowish white; no purple on head or elsewhere.

"Wing, 128 to 140; tail, 95; tarsus, 22; culmen from cranium suture, 17 to 19." (*Meyer and Wiglesworth.*)

Male.—"Iris sea-green; bill green, reddish at base; tarsus greenish olive. Length, 295; wing, 144." (*Salvadori.*)

Genus SPILOTRERON Salvadori, 1882.

First primary slightly attenuated on its distal third; tail square; tarsus feathered nearly to the toes.

30. **SPILOTRERON BANGUEYENSIS** (A. B. Meyer).

MEYER'S FRUIT PIGEON.

Ptilopus bangueyensis Meyer, Jour. für Orn. (1891), 70; Salvadori, Cat. Birds Brit. Mus. (1893), **21**, 143.

Spilotreron bangueyensis Sharpe, Hand-List (1899), **1**, 61; McGregor and Worcester, Hand-List (1906), 11.

Ptilopus purpureinucha Meyer, Jour. für Orn. (1891), 71.

Basilan (*Everett, Steere Exp., Bourns & Worcester, McGregor*); Bongao (*Everett*); Cagayan Sulu (*Mearns*); Mindanao (*Everett, Steere Exp.*); Palawan (*Lempiere, Whitehead*); Sibutu (*Everett*); Sulu (*Burbidge, Guillemard, Bourns & Worcester*); Tawi Tawi (*Bourns & Worcester*). Banguey.

Adult male.—Bright leaf-green, mantle slightly yellowish; head, neck, and throat pearly gray; chin and upper throat yellow; a large patch on occiput and hind neck black; lower abdomen and short tail-coverts bright yellow; longer tail-coverts bright carmine, narrowly tipped with yellow; secondaries and greater coverts very narrowly edged with yellow. Eyelids.

iris, and bill greenish yellow; feet rose-pink; nails brown. Length, 240. Two males from Basilan, wing, 123, 116; tail, 85; exposed culmen, 16, 15; middle toe with claw, 26.

Adult female.—Entirely green, except the under tail-coverts which are green, washed with carmine, and narrowly tipped with yellow. Two females from Basilan measure: Wing, 121, 118; tail, 79, 80; exposed culmen, 16, 14; middle toe with claw, 26, 25.

Young.—Similar to the adult female but with little or no carmine on under tail-coverts.

"This, the most northern form of the *Spilotreron* group, is very nearly related to the most southern one, from which it is not easily distinguished. The slight purple tinge of the black occipital spot, on which Dr. Meyer relies to separate the Basilan bird, appears only in certain individuals, but is absent in the majority of specimens. As to the collar of the bird from Banguey, which is described as whitish gray, I do not find that it is different from that of the specimens from other localities." (*Salvadori.*)

"The blue spot on the nape on which Meyer relies to separate the Basilan birds is a minus quantity in our five specimens from that island, though they are in breeding plumage. This species is quite common in Sulu and Tawi Tawi, and is sometimes found feeding in isolated trees in open fields.

"Iris yellow; legs dark pink; feet same color; nails nearly black; bill and eye-wattle light greenish yellow. Length, 230; wing, 121; tail, 81; culmen, 33; middle toe with claw, 29." (*Bourns and Worcester MS.*)

Subfamily MUSCADIVORINÆ.

This group includes the largest species of forest pigeons.

Genera.

a^1. Colors above, except head, metallic blue, green, purple, or bronze; or the tail at least metallic green above.
  b^1. First primary not scooped on inner web; lower parts uniform in color. **Muscadivores** (p. 42)
  b^2. First primary deeply scooped on inner web.
    c^1. No light band on tail........ **Ptilocolpa** (p. 45)
    c^2. Tail crossed by a conspicuous gray band........ **Zonophaps** (p. 48)
a^2. Colors cream and slate; no metallic colors on any part of plumage. **Myristicivora** (p. 50)

Genus MUSCADIVORES Gray, 1855.

Inner web of first primary very slightly attenuated; gape deeply cleft; tarsus stout and feathered in front for half its length. Upper parts, except head and neck, metallic blue or green; tail nearly uniform with the back and wings, without a light band; head and lower parts pearl-gray or pale vinaceous-gray.

Species.

- a^{1}. Larger; back and scapulars glossy green or coppery bronze.
  - b^{1}. Nape with a coppery chestnut patch.. **nuchalis** (p. 43)
  - b^{2}. Nape without a coppery chestnut patch.
    - c^{1}. Gray of mantle lighter and more sharply defined from the green back.
      - d^{1}. Upper surface of tail lighter and greener........................ **chalybura** (p. 43)
      - d^{2}. Upper surface of tail darker and bluer...................... **palawanensis** (p. 44)
    - c^{2}. Gray of mantle darker and less sharply defined.......................... **ænea** (p. 44)
- a^{2}. Smaller; back and scapulars glossy brown with but little metallic color.
  - b^{1}. Under parts lighter.. **pickeringi** (p. 44)
  - b^{2}. Under parts darker.. **langhornei** (p. 45)

31. MUSCADIVORES NUCHALIS (Cabanis).

CHESTNUT-NAPED IMPERIAL PIGEON.

Carpophaga nuchalis CABANIS, Jour. für Orn. (1882), 126; SALVADORI, Cat. Birds Brit. Mus. (1893). 21, 190; GRANT, Ibis (1895), 116; WHITEHEAD, Ibis (1899), 487; SHARPE, Hand-List (1899), 1, 64.

Muscadivora nuchalis MCGREGOR and WORCESTER, Hand-List (1906), 11.

Calayan (*McGregor*); Camiguin N. (*McGregor*); Fuga (*Whitehead*); Luzon (*Whitehead*); Mindoro (*teste Hartert*).

This species has been established on the character of a cupreous chestnut nape; otherwise it differs but slightly from *M. chalybura* with which it appears to intergrade. Its status is somewhat doubtful.

32. MUSCADIVORES CHALYBURA (Bonaparte).

BONAPARTE'S IMPERIAL PIGEON.

Carpophaga chalybura BONAPARTE, Consp. Gen. Avium (1854), 2, 32.

Carpophaga ænea SALVADORI, Cat. Birds Brit. Mus. (1893), 21, 190, 193 (part).

Muscadivora ænea MCGREGOR and WORCESTER, Hand-List (1906), 11 (part).

Baud, Bohol; *bá-lud*, Ticao, Manila. and in general use.

Bantayan (*McGregor*); Basilan (*Everett, Steere Exp., Bourns & Worcester, McGregor*); Bohol (*McGregor*); Catanduanes (*Whitehead*); Cebu (*Everett, Bourns & Worcester, McGregor*); Dinagat (*Everett*); Guimaras (*Steere Exp., Bourns & Worcester*); Leyte (*Everett*); Lubang (*McGregor*); Luzon (*Meyer, Steere Exp., Whitehead, McGregor*); Marinduque (*Steere Exp.*); Masbate (*Steere Exp., Bourns & Worcester, McGregor*); Mindanao (*Everett, Koch & Schadenberg, Steere Exp., Bourns & Worcester, Goodfellow, Celestino*); Mindoro (*Steere Exp., Schmacker, Bourns & Worcester, McGregor, Porter*); Negros (*Meyer, Steere Exp., Bourns & Worcester, Keay*); Panay (*Bourns & Worcester*); Samar (*Bourns & Worcester*); Semirara (*Worcester*); Sibuyan (*McGregor*); Siquijor (*Bourns & Worcester, Celestino*); Tablas (*Bourns & Worcester*); Ticao (*McGregor*); Verde (*McGregor*).

Very closely related to *M. ænea* but gray of hind neck and upper mantle lighter and more sharply defined from the metallic green of the back; tail with less blue tinge. Iris bright red; bill gray; legs and feet dull red.

A male from Mindoro measures: Length, 420; wing, 240; tail, 156; exposed culmen, 25; tarsus. 28.

A female from Ticao: Length, 420; wing, 232; tail, 147; exposed culmen, 24; tarsus, 25.

This is the common *balud*, or fruit pigeon, inhabiting the Philippines.

33. MUSCADIVORES PALAWANENSIS (Blasius).

PALAWAN IMPERIAL PIGEON.

Carpophaga ænea palawanensis BLASIUS, Ornis (1888), 4, 316.
Carpophaga ænea SALVADORI, Cat. Birds Brit. Mus. (1893), **21**, 190, 193 (part).
Muscadivora ænea McGREGOR and WORCESTER, Hand-List (1906), 11 (part).

Balabac (*Steere*); Calamianes (*Bourns & Worcester, McGregor*); Palawan (*Steere, Everett, Lempriere, Whitehead, Steere Exp., Bourns & Worcester, Celestino, White*).

Very much like *M. chalybura* but tail darker and generally bluer on its upper surface. Male: Length, 455; wing, 250; tail, 163. Female: Length, 445; wing, 250; tail, 163.

This bird is a very slightly differentiated race of the green imperial pigeon.

34. MUSCADIVORES ÆNEA (Linnæus).

GREEN IMPERIAL PIGEON.

Columba ænea LINNÆUS, Syst. Nat. ed. 12 (1766), **1**, 283.
Carpophaga ænea SALVADORI, Cat. Birds Brit. Mus. (1893), **21**, 190, 193 (part); SHARPE, Hand-List (1899), **1**, 64; OATES, Cat. Birds' Eggs (1901), **1**, 85.
Muscadivora ænea McGREGOR and WORCESTER, Hand-List (1906), 11 (part).

Bongao (*Everett*); Sulu (*Burbidge, Guillemard, Bourns & Worcester*); Tawi Tawi (*Bourns & Worcester*). Indian Peninsula, Ceylon, Indo-Chinese countries, Malay Peninsula, Sunda Islands.

Adult (*sexes alike*).—Head, neck, and abdomen gray, tinged with vinaceous; breast gray; forehead and chin whitish; under tail-coverts dark chestnut; back, rump, upper tail-coverts, and wings metallic green, mixed with metallic copper-color; primaries and secondaries blackish with mealy edges. "Iris red; bill gray; region of nostrils dull red; edges of eyelids, legs, and feet purplish red." (*Oates.*) Length, about 450; wing, 240; tail, 150; exposed culmen, 23; tarsus, 27. Female slightly smaller than male.

35. MUSCADIVORES PICKERINGI (Cassin).

PICKERING'S IMPERIAL PIGEON.

Carpophaga pickeringii CASSIN, Proc. Acad. Nat. Sci. Philad. (1854), **7**, 228; Ornith. Wilkes Exped. (1858), 267, pl. 27.
Carpophaga pickeringi SALVADORI, Cat. Birds Brit. Mus. (1893), **21**, 201; SHARPE, Hand-List (1899), **1**, 65.
Muscadivora pickeringi McGREGOR and WORCESTER, Hand-List (1906), 11.

A-bu-un, Cagayancillo.

Cagayancillo* (*McGregor*); Cagayan Sulu (*Guillemard*); Sibutu (*Everett*); Sulu (*Guillemard*). Mantanani Islands, Lawas River, northwest Borneo.

"*Adult male.*—Head and under parts grayish vinous, changing into pure gray on lower hind neck and upper mantle; frontal edge, a ring of feathers round eyes, and chin whitish; back, rump, and wings grayish green (in some specimens with a slight brown tinge), with a metallic luster in some lights; longer upper tail-coverts and tail above metallic bottle-green; primaries mealy green, especially on outer webs; under surface of wings and tail gray; under tail-coverts gray with a reddish tinge. 'Iris crimson; bill light lead-gray; feet dull crimson.' (*Everett.*) Length, about 400; wing, 240; tail, 173; bill, 20; tarsus, 28.

"*Female.*—Similar to the male." (*Salvadori.*)

This species was very abundant on Cagayancillo where it fed entirely on young leaves of trees.

36. MUSCADIVORES LANGHORNEI (Mearns).

LANGHORNE'S IMPERIAL PIGEON.

Muscadivora langhornei MEARNS, Proc. Biol. Soc. Wash. (1905), **18**, 84; McGREGOR and WORCESTER, Hand-List (1906), 11.

East Bolod (*Mearns*); West Bolod (*Mearns*).

"This large fruit pigeon is closely related to *Muscadivora pickeringi* (Cassin) from Mangsee Island north of Borneo, on the west side of the Sulu Sea, of which the type (No. 15732) is in United States National Museum. The size is practically the same; but the colors differ as follows: General coloration paler; the vinous-gray of the head and under parts is darker, the gray of lower hind neck extends farther down on the mantle, the white around the base of the bill and surrounding the eye is more extensive, the back and rump are paler and less brownish gray, the wings are paler, grayer and less greenish, and the under tail-coverts less reddish. Iris purplish red; region of the nostrils dark plumbeous; bill light plumbeous; naked eyelid deep vinaceous; bare space around eye plumbeous; feet vinaceous, flesh-color on under side of toes; claws plumbeous. Three adult males: Length, 456, 456, 460; alar expanse, 770, 760, 770; wing, 242, 242, 243; tail, 180, 180, 178; culmen, 19, 21, 19; tarsus, 30, 31, 32; middle toe with claw, 48, 49, 45." (*Mearns.*)

Genus PTILOCOLPA Bonaparte, 1854.

Sexes unlike in plumage; bill and gape rather small compared with *Muscadivores;* nostril opening elongate; first primary attenuated and scooped on inner web; second primary slightly scooped; inner primaries obliquely cut at tip; the outline sinuous and outer web extending beyond shaft and inner web; tarsus partly feathered.

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* Birds from some of these localities may be *M. langhornei*.

Species.

a^1. Chin, throat, and upper part of chest gray or black.
  b^1. Band on fore breast light slate-gray .... **carola** (p. 46)
  b^2. Band on fore breast black .... **nigrorum** (p. 47)
a^2. Chin, throat, and upper part of chest nearly pure white.... **mindanensis** (p. 47)

37. PTILOCOLPA CAROLA (Bonaparte).

GRAY-BREASTED FRUIT PIGEON.

Carpophaga carola BONAPARTE, Consp. Gen. Avium (1854), **2**, 34; SALVADORI, Cat. Birds Brit. Mus. (1893), **21**, 206.
Ptilocolpa carola GRANT, Ibis (1895). 117; WHITEHEAD, Ibis (1899), 489; SHARPE, Hand-List (1899), **1**, 65; MCGREGOR and WORCESTER, Hand-List (1906), 12.
Ptilocolpa griseipectus BONAPARTE, Consp. Gen. Avium (1854), **2**, 34.

Luzon (*Gevers, Heriot, Whitehead, McGregor*); Mindoro (*Steere Exp., Whitehead, McGregor, Porter*); Mindanao (*Everett, Koch & Schadenberg*);* Sibuyan (*McGregor*).

Adult male.—All of head, neck all around, back and interscapulars light gray; chin white; lower throat delicate light gray, bordered behind by a narrow white band and this followed by a wide, dark gray band on fore breast; lower breast, abdomen, and flanks dark chestnut, darker and slightly purplish on breast; sides gray; alula, primaries, and their coverts, dark, glossy blue-green; secondaries blue-green, mealy along outer edges; wing-coverts and inner secondaries canescent, the smaller feathers each with a dark spot at tip; rump-feathers canescent with glossy green centers and light purple edges; rectrices and upper coverts glossy blue-green, shafts black; rectrices black below, except outermost pair which are brown with white shafts. Iris white mottled with pink; bill rose-pink, the "nail" white; legs rose-pink, nails brown. Two males from Benguet, Luzon, average: Length, 356; wing, 216; tail, 131; culmen from base, 22; tarsus, 22.

Adult female.—Somewhat similar to the male but without a white band across the crop; fore breast light purple dulled by its slightly mealy look; held toward the light, it becomes green and away from the light, slightly metallic copper-red washed with vinous; rest of under parts much lighter chestnut than in male; wing-coverts glossy green, lesser and median coverts with blue spots at tips; interscapulars vinous and slightly mealy; lower back and rump green with touches of deep blue. The following notes are from an adult female taken in Benguet, Luzon: Iris with an inner white ring and outer pinkish ring; eyelids dirty white; bare skin about eyes blue-gray; bill deep rose-red, tip white; legs and feet rose-red, soles yellowish; nails brown.

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[*] It is possible that all the records of *Ptilocolpa* for Mindanao should be referred to *P. mindanensis*.

Young.—Immature birds have the fore breast chestnut, uniform with the abdomen, thus not resembling the adult plumage of either sex; wings rich metallic green, or copper-red, without canescence and the primaries neither scooped nor cut as are those of the adult.

The plumage of the male and female in the gray-breasted fruit pigeon is so different that the sexes were long considered to represent distinct species. Grant, working on the material gathered by Whitehead, has shown that these differences are sexual and not specific and more recently collected material sustains his conclusions.

In habits these birds are quite similar to the slightly larger imperial pigeons or *baluds.* They feed on large seeds or nuts and are often found in considerable numbers in fruiting trees.

38. **PTILOCOLPA NIGRORUM** Whitehead.

BLACK-BREASTED FRUIT PIGEON.

Ptilocolpa nigrorum WHITEHEAD, Bull. Brit. Orn. Club. (1897), **6**, 34: Ibis (1899), 490; MCGREGOR and WORCESTER, Hand-List (1906), 12.

Negros (*Whitehead*).

Adult male.—Similar to *P. carola* but band on fore breast black not ash-gray. Total length, 330; wing, 211; tail, 122; tarsus, 22.* "Base of bill coral-pink, tipped with dull white; iris pale straw-yellow; feet coral-pink." (*Whitehead.*)

Adult female.—Said to be similar to the female of *griseipectus.*

This species is known from Whitehead's specimens only, taken "when camped just below the bare cone of Canloon."

39. **PTILOCOLPA MINDANENSIS** Grant.

MINDANAO FRUIT PIGEON.

Ptilocolpa mindanensis GRANT, Bull. Brit. Orn. Club. (1905), **16**, 16: Ibis (1906), 503.

Mindanao (*Goodfellow, Celestino*).

Adult male.—"Very similar to the male of *P. nigrorum* Whitehead, but with the chin, throat, and upper part of the chest nearly pure white, instead of gray, and the breast deep grayish black. 'Iris creamy white: eyelids pale gray; bill scarlet at base, pinkish white toward the tip: feet dull purple.' (*Goodfellow.*) Length, about 330; wing, 205; tail, 114." (*Grant.*)

Collected on Mount Apo, Mindanao, at 2,440 meters.

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* Whitehead's diagnosis is as follows: "Similis *P. griseipectori* (Bp.), sed plaga præpectorali nigra, nec cinerea, facile distinguenda. Long. tot. 13.0 poll., alæ 8.3, caudæ 4.8, tarsi 0.85."

Genus ZONOPHAPS Salvadori, 1893.

Very large; a conspicuous bare area about eye; first primary slender, scooped near middle of inner web; second primary attenuated by a double cut; tail crossed by a gray band some distance from tip.

Species.

a^1. Breast green; abdomen pale vinous	**poliocephala** (p. 48)
a^2. Breast and abdomen uniform blue-gray	**mindorensis** (p. 49)

40. **ZONOPHAPS POLIOCEPHALA** (Hartlaub).

PHILIPPINE ZONE-TAILED PIGEON.

Carpophaga poliocephala HARTLAUB, Jour. für Orn. (1855), 97; SALVADORI, Cat. Birds Brit. Mus. (1893), **21**, 209; WHITEHEAD, Ibis (1899), 487.

Zonophaps poliocephala SHARPE, Hand-List (1899), **1**, 65; MCGREGOR and WORCESTER, Hand-List (1906), 12.

Basilan (*Steere Exp.*, *McGregor*); Cebu (*Bourns & Worcester*); Dinagat (*Everett*); Leyte (*Whitehead*); Luzon (*Gerers, Whitehead*); Masbate (*Steere Exp.*); Mindanao (*Everett, Steere Exp.*, *Goodfellow*); Mindoro (*McGregor*); Negros (*Steere, Keay*); Panay (*Bourns & Worcester*); Samar (*Bourns & Worcester*); Sibuyan (*McGregor*); Tawi Tawi (*Bourns & Worcester*).

Adult (*sexes alike*).—Head and a narrow band across throat pale gray, vinous on crown and occiput; a large patch of light chestnut on chin; lower breast and abdomen pale vinous; abdomen freckled with chestnut, the color becoming rich chestnut-brown on flanks, thighs, and under tail-coverts; tail black below, crossed at about 40 mm. from tip by a pale gray band which shows both above and below; when the specimen is held toward the light, the crop, breast, sides of neck, and upper parts, except head, are rich green; held away from the light, tail and its coverts, rump, distal wing-coverts, secondaries, and breast become largely coppery or bronze-color; hind neck vinaceous gray, proximal wing-coverts, tertials, and interscapular region deep vinous-purple. Bill black; "iris indian-yellow, passing into red on outer ring;" legs, feet, and skin about eye crimson; nails gray. Length, 400 to 430; a male from Sibuyan measures: Wing, 235; tail, 156; culmen from base, 24; tarsus, 32; a female from Sibuyan, wing, 235; tail, 154; culmen from base, 24; tarsus, 27.

"Comparatively rare and usually frequents the loftiest trees. For a long time we mistook its deep booming note for the hoot of some great owl. Occasionally it comes down into low second-growth where it is easily shot, being very stupid about making its escape.

"Iris with outer red and inner yellow or brown ring; legs and feet red; nails dark brown; bill black; eyelids red. Length 400." (*Bourns and Worcester MS.*)

41. ZONOPHAPS MINDORENSIS (Whitehead).

MINDORO ZONE-TAILED PIGEON.

Carpophaga mindorensis WHITEHEAD, Ann. & Mag. Nat. Hist. (1896), ser. 6, **18**, 189; Ibis (1899), 488; GRANT, Ibis (1896), 476, pl. 11.

Zonophaps mindorensis SHARPE, Hand-List (1899), **1**, 65; MCGREGOR and WORCESTER, Hand-List (1906), 12.

Mindoro (*Whitehead*).

"*Adult male.*—Most nearly allied to *Carpophaga radiata* (Quoy and Gaimard) but much larger. Top of head, neck, breast, and rest of under parts bluish slate-gray, darkest on belly and under tail-coverts, the latter indistinctly edged with rufous; forehead, cheeks, and throat pale whitish pink; feathers surrounding eye and forming a patch above ear-coverts, blackish gray; hind neck gradually shading into sooty black on the mantle and interscapulary region; scapulars and inner wing-coverts bronze-lake, changing to bronze-green on the rest of the wings, rump, and upper tail-coverts; primary quills blackish gray, the inner ones glossed on the outer web and toward the extremity with metallic green; tail-feathers black, glossed with purple and green, and with a wide gray band across the middle; under wing-coverts and axillars slightly glossed with bronze. Length, 482; exposed culmen, 23; wing, 234; tail, 178; tarsus, 35; middle toe with claw, 51.

"*Adult female.*—Similar to the male but rather smaller, and the under tail-coverts distinctly margined with chestnut. Length, 445; exposed culmen, 23; wing, 223; tail, 159; tarsus, 33; middle toe with claw, 46." (*Whitehead.*)

This species is much larger than *Zonophaps poliocephala* from which it differs also in the following points: A large black patch on ear-coverts and surrounding eye; forehead, cheeks, and chin fawn-color; occiput, neck, crop, breast, abdomen, and under tail-coverts gray.

"*Male.*—Iris bright yellow, with an outer ring of red; orbital skin lake-red, with a grayish yellow space between the rings; bill black; feet coral-pink. Female: Iris straw-yellow, with an outer ring of golden brown; orbital skin orange-yellow, bill olive-brown, black at tip; feet salmon-red; nails black.

"This species is more often met with singly or in pairs, but sometimes as many as four birds were seen together; they were feeding on some large purple colored fruits as big as a pigeon's egg. *C. mindorensis*, like the last species (*Zonophaps poliocephala*), has a conspicuous fleshy ring outside the eyelid. * * * During dull misty weather, especially just after daybreak, the penetrating booming note is more often heard than on clear days." (*Whitehead.*)

So far as known the species is confined to the highlands of Mindoro at an elevation of between 1,200 and 1,800 meters.

Genus MYRISTICIVORA Reichenbach, 1852.

Inner webs of first and second primaries very slightly attenuated; tarsus feathered in front for half its length. This genus is remarkable for its coloration: parts of the wings and tail, slate or black, the rest of the plumage pale creamy white.

42. **MYRISTICIVORA BICOLOR** (Scopoli).

NUTMEG PIGEON.

Columba bicolor SCOPOLI, Del Flor. et Faun. Insubr. (1786), **2**, 94.
Carpophaga bicolor CASSIN, Ornith. Wilkes Exped. (1858), 265, pl. 28.
Myristicivora bicolor SALVADORI, Cat. Birds Brit. Mus. (1893), **21**, 227; SHARPE, Hand-List (1899), **1**, 67; OATES, Cat. Birds' Eggs (1901), **1**, 86; McGREGOR and WORCESTER, Hand-List (1906), 12.

Ca-má-su, bá-lud blan'-co, in general use.

Balabac (*Steere, Everett*); Bantayan (*McGregor*); Bongao (*Everett*); Cresta de Gallo (*McGregor*); Guimaras (*Steere Exp.*); Malanipa (*Murray*); Marinduque (*Steere Exp.*); Masbate (*Bourns & Worcester*); Mindanao (*Everett, Koch & Schadenberg*); Mindoro (*Bourns & Worcester, McGregor, Porter*); Negros (*Meyer, Steere Exp.*); Nipa (*Everett*); Palawan (*Bourns & Worcester, White*); Sakuijok (*Everett*); Sibay (*McGregor & Worcester*); Siquijor (*Steere Exp., Bourns & Worcester, Celestino*); Sulu (*Guillemard, Bourns & Worcester*); Tawi Tawi (*Bourns & Worcester*); Ticao (*McGregor*); West Bolod (*Mearns*). Siam, Cochin-China, Malay Peninsula, Tenimber and Indo-Malayan Islands, Andamans, Nicobars, and Moluccas.

Adult (*sexes alike*).—General color pale creamy white; head and sides of head more or less ochraceous-yellow; wing-coverts and edge of wing white; alula, primary-coverts, primaries, and most of the secondaries black; outer web of longer primaries mealy; basal half, or more, of rectrices and under tail-coverts light yellow, the coverts in some specimens spotted with black; end of tail marked with a wide black band which is widest on middle rectrices. Iris dark brown; bill dull blue with a black tip; eyelids, legs, and feet dark blue; nails black. Length, about 380; a male from Ticao measures: Wing, 229; tail, 127; culmen from base, 25; tarsus, 27; a female from Cresta de Gallo, wing, 229; tail, 127; culmen from base, 24; tarsus, 29.

The *camaso,* or *balud blanco,* being a very conspicuous bird, is well known to both natives and Spaniards and can not be mistaken for any other species of Philippine pigeon. The species is irregular in distribution; it is often abundant on a small island and rare, or entirely wanting, on a larger neighboring island. Worcester and Bourns found it especially abundant in Siquijor. No specimens were taken by Whitehead and it is unrecorded from Luzon, although there seems to be no reason why it should be absent from that island.

Family **COLUMBIDÆ.**

Tarsus slender, feathered at base; bill slender, gape small, and nostril covering conspicuously swollen; tail nearly square or greatly graduated; colors blackish or reddish brown.

Subfamilies.

a^1. Tail moderate, nearly square; plumage mostly blackish with purple and green metallic reflections .... **Columbinæ** (p. 51)

a^2. Tail greatly elongated and graduated; plumage mostly chestnut or rufous-brown with little metallic color........ **Macropyginæ** (p. 52)

Subfamily COLUMBINÆ.

Genus COLUMBA Linnæus, 1758.

Bill comparatively slender; membrane behind nostril greatly swollen and bulging out on the side; first primary very slightly scooped on inner web; tarsus feathered at the base. The only Philippine species is almost entirely black, glossed with green and purple.

43. **COLUMBA GRISEOGULARIS** (Walden and Layard).

GRAY-THROATED PIGEON.

Ianthænas griseogularis WALDEN and LAYARD, Ibis (1872), 104, pl. 6.
Columba griseigularis SALVADORI, Cat. Birds Brit. Mus. (1893), **21**, 313; SHARPE, Hand-List (1899), **1**, 72; MCGREGOR and WORCESTER, Hand-List (1906), 13.

Bá-lud mai-tim, Manila; *bá-duc,* Batan.

Basilan (*Everett, Bourns & Worcester*); Batan (*McGregor*); Cagayan Sulu (*McGregor*); Calayan (*McGregor*); Guimaras (*Layard, Meyer*); Lubang (*McGregor*); Luzon (*Gevers, Whitehead*); Mindanao (*Steere Exp., Platen, Goodfellow*); Mindoro (*McGregor*); Negros (*Everett, Whitehead*); Romblon (*McGregor*); Sibutu (*Everett*); Sibuyan (*McGregor*); Sulu (*Burbidge*); West Bolod (*Mearns*). Northern Borneo.

Adult (*sexes alike*).—General color slate-black with metallic purple or green tips to the feathers; chin, upper throat, and sides of face below eyes pale gray; head, neck, back, breast, abdomen, and tips of wing-coverts, and upper and under tail-coverts glossed with metallic purple changing to green; remiges and rectrices black without metallic reflections, their coverts largely black with only the tips metallic; colors change greatly with the angle at which the specimen is held. Iris bright yellow; base of bill dark red, tip light yellow; feet and bare space about eye red. Length, 380 to 430; two males, wing, 248; tail, 161; exposed culmen, 22; tarsus, 28.

Young.—Differs from the adult in having metallic edges of feathers narrower on body, and wanting on wing-coverts; throat and breast blackish brown, each feather tipped with cinnamon.

Although of wide distribution, this species does not occur in great numbers except on the Island of Batan in the Batanes group where many individuals are caught with bird-lime and sold to visiting ships.

Subfamily MACROPYGINÆ.

Genus MACROPYGIA Swainson, 1837.

Bill small and rather slender; upper part of tarsus slightly feathered; tail long and greatly graduated; longest and shortest rectrices differing in length by about half the wing.

Species.

a^1. Smaller and lighter, without a vinous wash on breast and abdomen; dark rufous-brown above .... **tenuirostris** (p. 52)
a^2. Larger and darker, a faint vinous wash on breast and abdomen; blackish brown above .... **phæa** (p. 53)

44. MACROPYGIA TENUIROSTRIS Bonaparte.

SLENDER-BILLED CUCKOO DOVE.

Macropygia tenuirostris BONAPARTE, Consp. Gen. Avium (1854), **2**, 57; SALVADORI, Cat. Birds Brit. Mus. (1893), **21**, 346; WHITEHEAD, Ibis (1899), 491; SHARPE, Hand-List (1899), **1**, 74; MCGREGOR and WORCESTER, Hand-List (1906), 13.

Macropygia eurycerca TWEEDDALE, Proc. Zool. Soc. (1878), 288 (young).

Ba-tie'-la-uin', Manila; *i-bu-oo*, Benguet Igorot.

Balabac (*Everett*); Basilan (*Everett, Steere Exp., Bourns & Worcester, McGregor*); Bohol (*McGregor*); Bongao (*Everett*); Leyte (*Whitehead*); Luzon (*Meyer, Heriot, Steere Exp., Bourns & Worcester, Whitehead, McGregor*); Marinduque (*Steere Exp.*); Masbate (*Bourns & Worcester*); Mindanao (*Everett, Steere Exp., Bourns & Worcester*); Mindoro (*Bourns & Worcester, McGregor, Porter*); Negros (*Meyer, Steere, Everett, Keay*); Palawan (*Lempriere, Whitehead, Platen, Steere Exp., Bourns & Worcester*); Romblon (*McGregor*); Sibutu (*Everett*); Sibuyan (*McGregor*); Sulu (*Burbidge*); Tawi Tawi (*Bourns & Worcester*).

Adult male.—Head, sides of neck and breast, and lower parts bright cinnamon-rufous, much lighter on throat and chin, darker on flanks, under tail-coverts, and rectrices; above including wings and tail dark brown; most of the feathers except remiges and rectrices, edged with fine rufous dots; feathers of neck covered with irregular vermiculations of rufous and blackish brown; sides of neck and of body and crop marked with a few black cross-lines; neck and its sides glossed with amethystine changing to green; metallic colors extending faintly onto back and rump; rectrices from above dark brown, except two outermost pairs which are cinnamon-rufous, each crossed by a diagonal black bar; next pair similar but more obscurely colored; inner webs of primaries edged with cinnamon. Iris of three rings, outermost reddish or crimson, middle ring black, innermost pale straw; skin around eye dirty brown; eyelids and basal half of bill crimson; distal end of bill brown;

legs and feet bright crimson; nails brown. Length, about 394; three males average, wing, 189; tail, 200; exposed culmen, 16; tarsus, 23.

Adult female.—Nearly like the male but with very little if any metallic gloss; neck and its sides black, barred with light cinnamon; crop and lower throat more or less barred and vermiculated with black.

Young.—A young bird from Sibuyan with tail less than half grown differs from the adult female in the throat- and breast-feathers being blackish brown, edged with rufous, and in having bars of upper parts more sharply cut, being produced by solid colors rather than by dots; the rectrices seen from above have narrow rufous tips and from below, each is crossed by a narrow, subterminal gray line.

The adult plumage is here described from a pair of birds taken at Irisan, Benguet Province, on May 1, 1903. That these were breeding birds was shown by disection and was noted on the tags. If the rusty edges are absent from the wing-coverts of fully adult birds then it must require two or possibly three years for them to attain that plumage.

"Exceedingly common in some localities. Frequents open ground surrounded by patches of second growth. When flushed it frequently alights in trees. Eyes yellow; legs and feet red. Length, 370; culmen, 19; wing, 165; tail, 184; tarsus, 22; middle toe with claw, 33." (*Bourns and Worcester MS.*)

"Common among the mountains of north Luzon, and found nesting on the summit of Monte Data, where the large tracts of dead bracken ferns afford it good protection. I saw a young one nearly ready to fly on 28th of January on this mountain. This dove is also plentiful in the lowland forests, and is distributed throughout the Archipelago." (*Whitehead.*)

45. MACROPYGIA PHÆA McGregor.

DARK CUCKOO DOVE.

Macropygia phæa McGregor, Bull. Philippine Mus. (1904), 4, 9; Phil. Jour. Sci. (1907), 2, sec. A, 338; McGregor and Worcester, Hand-List (1906), 13.

A-la-gá-dang, Calayan.
Batan (*McGregor*); Calayan (*McGregor*).

Adult.—Similar to *Macropygia tenuirostris* but larger and darker; cinnamon edgings on inner primary webs and rufous edging of wing-coverts narrower or obsolete. The sexes differ as in the preceding species.

Male (*type*).—Bill brown with reddish base; legs dark reddish brown; nails brown; iris of three rings, outer crimson, middle black, inner straw. Length, 413; wing, 198; tail, 198; exposed culmen, 18; tarsus, 24.

Female (*type*).—Colors of bill, legs, and eyes as in the male. Length, 406; wing, 196; tail, 195; exposed culmen, 18; tarsus, 22.

This species is rather abundant in Calayan; in habits it does not differ from *Macropygia tenuirostris.* The species is rare in Batan, Batanes, where a nest containing one egg was taken, June 12. The egg is pure white and measures 37 by 27.

Family **PERISTERIDÆ.**

Tarsus slender and unfeathered; bill slender and weak, gape small, nostril covering swollen; tail slightly graduated; colors plain or brilliant; size moderate.

Subfamilies.

- a^1. Plumage mostly brown, gray, and vinous; very little if any metallic color.
  - b^1. First primary not greatly attenuated; no narrow cross-bars on neck and back; tail square or slightly graduated .... **Turturinæ** (p. 54)
  - b^2. First primary abruptly attenuated; neck and back barred with narrow lines; tail graduated, longest rectrix exceeding shortest by more than twice the tarsus .... **Geopelinæ** (p. 57)
- a^2. Plumage largely metallic green or purple.
  - b^1. Feathers of hind neck not elongated; tail not white.
    - c^1. A gray band across rump and another across back; breast uniform. **Phabinæ** (p. 58)
    - c^2. No band across back nor rump; a large smear of orange or blood-red on middle of breast .... **Geotrygoninæ** (p. 60)
  - b^2. Feathers of neck long, narrow, and soft; tail pure white **Calœnadinæ** (p. 64)

Subfamily TURTURINÆ.

Genera.

- a^1. Feathers of neck normal, not bifurcated; wing-coverts without shaft-stripes.
  - b^1. Larger, length, 300 mm. or more; outermost rectrices with narrow white tips. **Streptopelia** (p. 54)
  - b^2. Smaller, length, 240 mm. or less; outermost rectrices with wide white ends. **Œnopopelia** (p. 56)
- a^2. Feathers of neck bifurcated; wing-coverts with dark shaft-stripes; edge of wing pale pearl-gray .... **Spilopelia** (p. 56)

Genus STREPTOPELIA Bonaparte, 1854.

This genus is characterized by having a long, nearly square tail, but the outermost rectrix on each side is about 10 mm. shorter than the next feather.

46. STREPTOPELIA DUSSUMIERI (Temminck).

DUSSUMIER'S TURTLE DOVE.

Columba dussumieri Temminck, Pl. Col. (1823), 188.

Turtur dussumieri Salvadori, Cat. Birds Brit. Mus. (1893), **21**, 423.

Streptopelia dussumieri Sharpe, Hand-List (1899), **1**, 79; Oates, Cat. Birds' Eggs (1901), **1**, 96; McGregor and Worcester, Hand-List (1906), 13.

Bá-to ba-tó de col-lar, Manila; *pa-gao,* Calayan; *tuc-mó,* Ticao, Bohol, Cagayancillo.

Agutaya (*McGregor*); Bantayan (*McGregor*); Banton (*Celestino*); Basilan (*Bourns & Worcester, McGregor*); Bohol (*Everett, Steere Exp., McGregor*); Cagayancillo (*McGregor*); Calayan (*McGregor*); Calamianes (*Bourns & Worcester, McGregor*); Caluya (*Porter*); Catanduanes (*Whitehead*); Cebu (*Everett, Steere Exp., McGregor*); Cuyo (*McGregor*); Fuga (*McGregor*); Guimaras (*Steere Exp.*); Leyte (*Everett*); Libagao (*Porter*); Lubang (*McGregor*); Luzon (*Meyer, Everett, Bourns & Worcester, Whitehead, McGregor*); Maestre de Campo (*McGregor & Worcester*); Marinduque (*Steere Exp.*); Masbate (*Steere Exp., Bourns & Worcester*); Mindanao (*Everett, Koch & Schadenberg, Steere Exp., Bourns & Worcester, Goodfellow*); Mindoro (*Steere Exp., Schmacker, Whitehead, McGregor, Porter*); Negros (*Meyer, Everett, Steere Exp.. Keay*); Palawan (*Platen, White*); Panay (*Bourns & Worcester*); Romblon (*Bourns & Worcester, McGregor*); Samar (*Whitehead*); Semirara (*Worcester*); Siasi (*Guillemard*); Sibay (*McGregor & Worcester*); Sibutu (*Everett*); Sibuyan (*Bourns & Worcester, McGregor*); Siquijor (*Steere Exp., Bourns & Worcester, Celestino*); Sulu (*Guillemard, Bourns & Wocester*); Tablas (*Bourns & Worcester*); Tawi Tawi (*Bourns & Worcester*); Ticao (*McGregor*); Verde (*McGregor*). North Borneo, Marianne Islands.

Adult (*sexes alike*).—Forehead and face pearl-gray; top and sides of head and nape darker, washed with vinous, nuchal collar blackish, each feather touched with gray, the tips faint metallic green; behind collar a band of light rusty brown; rest of upper parts, including tail-coverts, tertiaries, and proximal wing-coverts, earthy brown; chin white shading into light vinous on throat, breast, and sides of neck and abdomen; sides and flanks gray; middle of abdomen, vent, and under tail-coverts white; alula, primary-coverts, and primaries blackish brown, the last with narrow whitish edges, secondaries similar to primaries; distal coverts in each series slate-gray; rectrices blackish brown below; outer webs of shortest pair white; three outer pairs with wide gray ends and narrow white tips; three middle pairs with brown ends. Iris light orange or reddish brown; bill dark horn-blue; angle of mouth dull red; legs light carmine; nails brown. Length, 300 to 330; three males average: Wing, 161; tail, 134; exposed culmen, 154; tarsus, 25; middle toe with claw, 31. Two females: Wing, 158; tail, 129; culmen, 18; tarsus, 24; middle toe with claw, 31.

"Enormously abundant in many localities, especially about the rice-fields after harvest. Everywhere common in open country. It is a favorite cage bird with the natives, who call it *took-moo* from its note. The nest, which is a mere platform of sticks and twigs, is placed on the branch of some low tree or bush. The eggs are pure white in color, and oval in form, with both ends rather sharply pointed. They measure 28.4 to 30.5 in length by 20.8 to 21.3 in breadth.

"Eyes golden brown; feet purple; length, 305; wing 155; tail, 123; culmen, 20; tarsus, 24; middle toe with claw, 32." (*Bourns and Worcester MS.*)

Dussumier's dove occurs in nearly every island of the group; it is partial to open, lowland country. After harvest it feeds in the rice-fields, being found in pairs or small companies.

Genus ŒNOPOPELIA Blanford, 1898.

Tail short and square, its feathers subequal; first primary nearly or quite as long as the second.

47. ŒNOPOPELIA HUMILIS (Temminck).

RED TURTLE DOVE.

Columba humilis TEMMINCK, Pl. Col. (1824), 259.
Turtur humilis SALVADORI, Cat. Birds Brit. Mus. (1893), **21**, 434.
Onopopelia humilis SHARPE, Hand-List (1899), **1**, 79.
Onopopelia humulis MCGREGOR and WORCESTER, Hand-List (1906), 14 (error).

Bá-to ba-tó de col-lar, Manila.

Calayan (*McGregor*); Lubang (*McGregor*); Luzon (*Cuming, Möllendorff, Meyer, Steere Exp., Bourns & Worcester, Whitehead, McGregor*); Mindoro (*Steere Exp., Bourns & Worcester*). China, Japan, Indo-Chinese countries, eastern Bengal, Andamans.

Adult male.—Back, wings, and under parts nearly uniform vinaceous-red; upper parts darker, more reddish brown; head and sides of face light slate-gray sharply separated from color of back by a narrow, black, nuchal band; lower back, rump, and upper tail-coverts blackish slate; chin white or nearly so; vent and under tail-coverts white; alula, primary-coverts, primaries, and secondaries blackish brown; rectrices black below; three outer pairs with the terminal third white; three inner pairs with terminal third pearl-gray; outermost pair with outer web all white; middle pair brown above. Iris dark; bill, legs, and nails black. Length, 215 to 240. Three males average: Wing, 138; tail, 90; exposed culmen, 14; tarsus, 19; middle toe with claw, 25.

Adult female.—Color pattern as in the male but the vinaceous-red replaced by earthy brown; under parts paler with a faint vinaceous wash; head brown like the back. Three females average: Wing, 128; tail, 77; exposed culmen, 14; tarsus, 18; middle toe with claw, 24.

Young.—The young male is like the adult female but lacks the nuchal band and under parts have no vinaceous wash; wing-coverts and feathers of breast tipped with yellowish brown.

The eastern ruddy dove is one of the common doves in Luzon; it is very abundant in open lowland country where it feeds upon the ground. Like the barred and Dussumier's doves this species is common in the vicinity of Manila; many are sold in the markets throughout the year. In the other islands it is very scarce.

Genus SPILOPELIA Sundevall, 1873.

Tail graduated; its outermost feather 40 mm. shorter than the central pair; a wide band of feathers on neck with bifurcated tips.

48. **SPILOPELIA TIGRINA** (Temminck and Knip).

MALAY SPOTTED DOVE.

Columba tigrina Temminck and Knip, Hist. Nat. des Pig. (1808–11), 1, pl. 43.
Turtur tigrinus Salvadori, Cat. Birds Brit. Mus. (1893), 21, 440.
Spilopelia tigrina Sharpe, Hand-List (1899), 1, 80; Oates, Cat. Birds' Eggs (1901), 1, 98; McGregor and Worcester, Hand-List (1906), 14.

Balabac (*Everett*); Palawan (*Whitehead, McGregor, Celestino, White*). Burma, Malay Peninsula, Greater and Lesser Sunda Islands, Celebes, Moluccas.

Adult (*sexes alike*).—Head dark gray with a vinaceous wash; forehead and face lighter; lores with a small black spot; bifurcated feathers of neck black with white tips; feathers of upper parts brown with paler, dull, rusty edges and dark shaft-stripes, the stripes widest on tertials and wing-coverts; distal coverts in each series pearl-gray, outer webs white; quills brown with narrow pale edges; lower parts vinous; paler, nearly white on chin; abdomen white washed with buff; under tail-coverts white; three outer tail-feathers black broadly tipped with white; next pair black, tipped with gray; two central feathers uniform brown, next pair black with a broad, terminal, brown band. "Iris reddish pearl; bill black; feet pinkish." (*Wallace.*) Length, about 300; wing, 145; tail, 150; exposed culmen, 17; tarsus, 22.

Young.—"More rufescent above and beneath; feathers of the hind neck of a pale brown with grayish edges." (*Salvadori.*)

The Malay spotted dove occurs in small numbers as a winter visitant to Balabac and Palawan. Whitehead says it is "scarce and very local" in Palawan; Celestino took several specimens at Puerto Princesa.

Subfamily GEOPELIINÆ.

Genus GEOPELIA Swainson, 1837.

Tip of first primary very slender; tail long and greatly graduated, and its feathers very slender. This genus contains the smallest Philippine doves.

49. **GEOPELIA STRIATA** (Linnæus).

BARRED GROUND DOVE.

Columba striata Linnæus, Syst. Nat. ed 12 (1766), 1, 282.
Geopelia striata Salvadori, Cat. Birds Brit. Mus. (1893), 21, 458; Sharpe, Hand-List (1899), 1, 80; Oates, Cat. Birds' Eggs (1901), 1, 101; McGregor and Worcester, Hand-List (1906), 14.

Ba-to ba-tó ca-tic'-bi, Manila.

Lubang (*McGregor*); Luzon (*Everett, Steere Exp., Bourns & Worcester, Whitehead, McGregor*); Mindoro (*Everett, McGregor*); Verde (*McGregor*). Siam, Southern Tenasserim, Malay Peninsula, Greater and Lesser Sunda Islands, Celebes, Amboina.

Adult male.—Anterior half of head, sides of face, chin, and upper throat pearl-gray; a little lighter on chin and forehead; hind crown and nape uniform dull reddish brown; rest of upper parts, including wing-coverts, earthy brown; neck and sides of neck decorated with sharply cut black and white bars (on hind neck washed with brown); above, the bars become obliterated posteriorly leaving the feathers uniform brown with black tips which persist to longest upper tail-coverts; below, along sides and flanks the black bars are reduced in width; middle of breast vinaceous-pink; middle of abdomen, vent, and under tail-coverts white and unbarred, primaries and secondaries brown, narrowly edged with brown or gray; lining of wing cinnamon with narrow black bars; rectrices brown, all but middle pair with wide white tips. Iris pale blue; bill and bare skin about eyes blue; legs and feet dull red; nails light horn. Length, 216 to 229. Five males yield the following measurements: Wing, 94 to 100 (98); tail, 91 to 104 (96); exposed culmen, 14 to 15 (14.5); tarsus, 19 to 20 (19.5); middle toe with claw, 22 to 24 (23).

Adult female.—Like the male; said to be less reddish on the occiput but this difference is not very obvious except where fully adult birds are compared.

Young.—Above like the adult but bars continued from nape onto top of head; wing-coverts barred with brown, buff, and rusty brown; secondaries edged with rusty buff; inner webs of primary-coverts rusty brown; no vinaceous-pink on breast which is barred like the sides.

In the full-plumaged bird the bars encroach upon the pink area of breast and are more strongly developed on sides and flanks than in less mature individuals. In most specimens the primary-coverts are tipped with cinnamon but in fine plumage these converts are uniform brown and the primaries from third to eighth inclusive, are narrowly edged with red near their bases.

The nest of this species is a frail mass of twigs with scarcely any hollow: it is placed on the branch of a bush, in a small tree, or according to Whitehead, among hanging creepers. Near Mariveles, Bataan, a nest with fresh eggs was found February 27, 1902. The two oval eggs are pure white.

The barred dove, while one of the commonest species in Luzon, occurs but rarely in other islands of the Archipelago. It is often found feeding in rice-fields after the grain has been harvested and is brought into the Manila markets from neighboring towns.

Subfamily PHABINÆ.

Genus CHALCOPHAPS Gould, 1843.

Bill slender; wing short; tail short and slightly rounded, its feathers wide; tarsal envelope entire, with no division into plates or scales; wings and mantle largely bronze-green.

50. CHALCOPHAPS INDICA (Linnæus).

INDIAN BRONZE-WINGED DOVE.

Columba indica LINNÆUS, Syst. Nat. ed. 10 (1758), 1, 164.

Chalcophaps indica SALVADORI, Cat. Birds Brit. Mus. (1893), 21, 514; SHARPE, Hand-List (1899), 1, 84; OATES, Cat. Birds' Eggs (1901), 1, 103, pl. 8 figs. 2 & 3; MCGREGOR and WORCESTER, Hand-List (1906), 14.

Ba-to ba-tó si-li, Manila; *ma-ná-tad*, Bohol; *ac-bá-on*, Ticao; *ba-na-tá*, Cagayancillo; *li-mú-kin*, Calayan.

Banton (*Celestino*); Basilan (*Everett, Steere Exp., Bourns & Worcester, McGregor*); Batan (*McGregor*); Bohol (*McGregor*); Cagayancillo (*McGregor*); Calamianes (*Bourns & Worcester*); Calayan (*McGregor*); Camiguin N. (*McGregor*); Cebu (*Everett, Steere Exp., McGregor*); Cuyo (*McGregor*); Fuga (*McGregor*); Guimaras (*Steere Exp.*); Lubang (*McGregor*); Luzon (*Everett, Meyer, Bourns & Worcester, Whitehead, McGregor*); Marinduque (*Steere Exp.*); Masbate (*Steere Exp., McGregor*); Mindanao (*Everett, Koch & Schadenberg, Steere Exp., Bourns & Worcester, Goodfellow, Celestino*); Mindoro (*Bourns & Worcester, McGregor, Porter*); Negros (*Meyer, Everett, Steere Exp., Bourns & Worcester, Keay*); Palawan (*Steere, Whitehead, Platen, Steere Exp., Bourns & Worcester, White*); Panay (*Steere, Bourns & Worcester*); Romblon (*Bourns & Worcester, McGregor*); Samar (*Bourns & Worcester*); Sibuyan (*Bourns & Worcester, McGregor*); Siquijor (*Bourns & Worcester, Celestino*); Sulu (*Platen*); Tablas (*Bourns & Worcester*); Tawi Tawi (*Bourns & Worcester*); Ticao (*McGregor*); Verde (*McGregor*). Indian and Malay Peninsulas, Indo-Chinese countries, Sunda Islands, Nicobars, Andamans, Moluccas, Ceylon, Celebes, New Guinea.

Adult male.—Forehead and superciliary stripe white, shading into slate-blue on crown and nape; upper back and neck washed with slate-blue; primaries, primary-coverts, and alula dull brown; small lesser coverts on shoulder tipped with white; rest of wings and back rich metallic green, changing to rich bronze when specimen is held away from the light; back metallic copper-color crossed near middle by a band of blue-gray; another blue-gray band between back and rump: upper tail-coverts dark slate with black tips; sides of neck and face and lower parts vinaceous-purple, paler on chin and on abdomen, the former sometimes washed with brown; basal under tail-coverts blue-gray, the longest ones blackish; rectrices mostly blackish, outermost pair mostly pearl-gray above, clearest on outer web, with a subterminal black band; next two pairs similar but variable. Iris brown; bill coral-red, dark at base; legs dark carmine; feet bluish; nails horn. A specimen from Mindoro measures: Length, 255; wing, 152; tail, 92; culmen from base, 23; tarsus, 27; middle toe with claw, 30.

Adult female.—In color pattern like the male from which it differs chiefly in having the vinaceous-purple replaced by brown, more or less faintly glossed with purple; whole head brown, superciliary stripe much reduced; small lesser wing-coverts brown; rump and upper tail-coverts cinnamon-brown with blackish tips and slight purple gloss; rectrices much as in male but second, third, and fourth outer pairs more or less rufous basally. A specimen from Masbate measures: Length, 241; wing, 139; tail, 85; culmen from base, 20; tarsus, 26; middle toe with claw, 28.

Young.—A young male has top and sides of head brown, the tips of many feathers cinnamon or rusty, especially those about the eyes; metallic colors of back and wings largely replaced by dusky brown and many of the wing-coverts, as well as some primaries and secondaries, tipped and mottled with rusty cinnamon; sides of neck, breast, and abdomen barred with cinnamon and blackish brown. Iris dark brown; bill dull reddish brown; legs dull pink; nails slate.

"Exceedingly common throughout the group. Invariably found on the ground and usually in deep woods. Usually alights on the ground again when flushed. Eyes dark brown; bill dark red; legs and feet light to dark red; nails light brown. Seven specimens average, 243 in length; wing, 141; tail, 88; culmen, 22; tarsus, 24; middle toe and claw, 29." (*Bourns and Worcester MS.*)

The bronze-winged dove, because of its wide distribution, is a species little valued by the collector but its solitary and unobtrusive habits usually lead the novice to mistake it for a rarity. In no place abundant, the species may be found in nearly every island where forest, or even a small growth of trees, exists to afford protected feeding grounds. Oates records two eggs of this species which were collected in Mindoro by the Steere Expedition.

Subfamily GEOTRYGONINÆ.

Genus PHLEGŒNAS Reichenbach, 1852.

Terrestrial and solitary; wings moderate; first primary normal; tail moderate and rounded; tarsi unfeathered; wing-coverts banded; chin and throat white; a conspicuous spot, or patch, of orange or red on crop region, where the feathers are decomposed and harsh.

Species.

a^1. Breast-spot blood-red.
  b^1. Forehead gray; lower breast pink........................ **luzonica** (p. 60)
  b^2. Forehead green like crown; lower breast buff or fawn.
    c^1. A broad chestnut band on wing-coverts........................ **criniger** (p. 61)
    c^2. A broad white band on lesser wing-coverts........................ **keayi** (p. 62)
a^2. Breast-spot orange.
  b^1. Hind breast and upper abdomen pearly ash........................ **menagei** (p. 63)
  b^2. Chest and abdomen white........................ **platenæ** (p. 64)

51. PHLEGŒNAS LUZONICA (Scopoli).

LUZON PUÑALADA.

Columba luzonica SCOPOLI, Del Flor. et Faun. Insubr. (1786), 94.

Phlogœnas luzonica SALVADORI, Cat. Birds Brit. Mus. (1893), **21**, 585; SHARPE, Hand-List (1899), **1**, 88; MCGREGOR and WORCESTER, Hand-List (1906), 15.

Pu-ña-lá-da, Manila and generally.

Luzon (*Meyer, Everett, Heriot, Steere Exp., Whitehead, McGregor, Celestino*).

Adult (*sexes similar*).—Top of head, from base of bill to hind border of eye, gray; rest of upper parts dark brown, each feather, except rectrices and their coverts, edged with metallic green or purple, according to the light; the edging wider on interscapulars; sides of neck similar to back; chin, throat, and sides of face below eyes pure white; a patch of blood-red on the stiffish feathers of crop, shading into pale salmon on lower breast and abdomen; sides gray; flanks, thighs, and under tail-coverts light buff; primaries and secondaries brown, edges reddish brown, basal half of inner web of primaries cinnamon; greater and median coverts reddish brown with wide gray tips forming two gray bands across each wing; lesser coverts gray; two middle pairs of rectrices brown on upper surface; the other rectrices gray, each with a subterminal black bar.

Length, about 280. A male from Bataan Province, Luzon, measures: Wing, 148; tail, 112; culmen from base, 21; tarsus, 35. A female from the same province measures: Wing, 145; tail, 102; culmen from base, 20; tarsus, 32.

This beautiful dove is often found in the Manila markets; it is a well-known favorite of the Spaniards. The species is commonly known as *puñalada* which means "stabbed with a dagger." The Calamianes record of this species is doubtless an error.

52. **PHLEGŒNAS CRINIGER** (Jacquinot and Pucheran).

HAIR-BREASTED PUÑALADA.

Pampusana criniger JACQUINOT and PUCHERAN, Voy. Pôle Sud. (1853), **3**, 118.

Phlogœnas bartletti SCLATER, Proc. Zool. Soc. (1863), 377, pl. 34.

Phlogœnas crinigera SALVADORI, Cat. Birds Brit. Mus. (1893), **21**, 587; SHARPE. Hand-List (1899), **1**, 88; MCGREGOR and WORCESTER, Hand-List (1906), 15.

Basilan (*Steere Exp., Bourns & Worcester, McGregor*); Leyte (*Whitehead*); Mindanao (*Everett, Steere Exp.*); Samar (*Bourns & Worcester*).

Adult male and female.—Head, cheeks, neck, and mantle dark metallic green changing to metallic purple; back, rump, and tail-coverts chestnut, some of the feathers with amethystine edges; white of chin and throat extending backward on each side of a large dark red crop-patch; rest of under parts rich buffy brown, lighter on tail-coverts, nearly white on abdomen; alula, primaries, and primary-coverts dark brown; secondaries chestnut; upper lesser coverts brown, edged with metallic green changing to amethystine; remainder of lesser coverts broadly tipped with gray; median and greater coverts chestnut, tipped with gray forming wing-bands; middle tail-feathers chestnut, the others blackish with wide gray tips. A male from Basilan: Length, 280; wing, 153; tail, 110; exposed culmen, 19; tarsus, 36. A female from Basilan: Wing, 145; tail, 95; exposed culmen, 19; tarsus, 34.

"Eyes lilac; legs light pink; feet dark pink; nails nearly white; upper mandible black, lower gray. Seven specimens average as follows: Length, 355; culmen, 21; wing, 146; tail, 95; tarsus, 32; middle toe with claw, 9.

"We consider the Sulu record of this species extremely doubtful. We saw a *Phlegœnas* there which we failed to obtain. It seems to us more probable, however, from the close relationship of the known birds of Sulu to those of Tawi Tawi that the species in question is *P. menagei.*

"The habits of the Philippine representatives of this genus are the same. The birds are invariably found on the ground in the forest. They run very rapidly, and in close cover frequently escape in this way without taking wing. When flushed they invariably alight on the ground again, and run rapidly after alighting, so that they are very difficult to kill. *P. criniger* is fairly abundant in Basilan, but much rarer in Samar." (*Bourns and Worcester MS.*)

53. **PHLEGŒNAS KEAYI** Clarke.

NEGROS PUÑALADA.

Phlogœnas keayi CLARKE, Ibis (1900), 359, pl. 8; MCGREGOR and WORCESTER, Hand-List (1906), 15.

Pe-nes, Negros.
Negros (*Keay*).

Adult.—"Feathers of the head, upper part of cheeks, hind neck, sides of breast, mantle, and lesser wing-coverts (except the distal series) gray, broadly edged with dark metallic green, changing to amethystine; back and rump purplish chestnut with amethystine margins to feathers; upper tail-coverts purplish chestnut; primaries dusky, with margins of outer webs and basal two-thirds of inner webs chestnut; secondaries chestnut, dusky toward tips of inner webs; greater and median coverts purplish chestnut; lesser coverts with two or three of their distal rows subterminally gray, broadly margined with white, the latter color forming a conspicuous band across wing; lining of wing and under wing-coverts chestnut; central pair of tail-feathers dark chestnut, the remainder gray with a broad subapical band of black; lower part of cheeks, throat, fore neck, breast, abdomen, and under tail-coverts white (abdomen washed with fawn in some specimens); flanks and thighs fawn, almost white in some examples; patch on crop-region small and blood-red; pectoral band narrow and incomplete, formed by the metallic green margins to some of the breast feathers. Feet red. Wing, 159; tail, 104; culmen, 18; tarsus, 37." (*Clarke.*)

Keay's blood-breasted pigeon is easily recognized by the conspicuous white band across the wing.

54. **PHLEGŒNAS MENAGEI** Bourns and Worcester.

TAWI TAWI PUÑALADA.

Phlogœnas menagei BOURNS and WORCESTER, Minnesota Acad. Nat. Sci. Occ. Papers (1894), 1, 10; SHARPE, Hand-List (1899), 1, 88; McGREGOR and WORCESTER, Hand-List (1906), 15.

Tawi Tawi (*Bourns & Worcester*).

"*Adult male.*—Entire upper surface of head, nape, hind neck, upper back, sides of neck, and sides of breast rich metallic green; scapulars and interscapulars dark brown, broadly edged with elegant violet when specimen is held between observer and the light, this color changing to deep green when specimen is held away from source of light; rump and upper tail-coverts ruddy brown narrowly edged with metallic colors of back; a few of the longest coverts nearly black, washed with rufous-brown at tips; basal portion of tail-feathers dark ashy gray, the two central feathers darkest; a distinct subterminal band of black on all but central pair of feathers; all the feathers with a terminal gray band, least distinct on central pair; wing-coverts dark brown, broadly tipped with metallic green except outer series, which are broadly tipped with ashy gray; primary- and secondary-coverts and secondaries fulvous-brown, the outer half of outer webs of feathers rich rufous-brown, the inner secondaries having the entire outer web, and tip of inner web, of this color; primaries fulvous-brown faintly washed with rufous-brown on basal half of outer webs; lores, a narrow line under eye, and ear-coverts nearly black with a faint wash of metallic green; metallic green of back and sides of neck continued in a distinct band across the breast, only slightly interrupted at center of breast and inclosing a beautiful orange plastron formed by the bristle-like tips of the feathers of the fore breast; basal portion of these feathers as well as chin, throat, sides of face, and sides of throat pure white; an indistinct white band behind the green pectoral band; hind breast and upper abdomen pearly ash, a few of the feathers tipped with creamy white; belly creamy white; flanks, thighs, and under tail-coverts buff; under surface of tail like upper, the terminal band being rather more pronounced; under wing-coverts, axillars, and basal portion of inner webs of all the quills chestnut-brown; rest of quills dark brown. Iris light silver-gray; bill slaty gray at tip, black at base; legs and feet light red; nails light brown. Length, 286; wing, 153; tail, 103; culmen, 21; tarsus, 36.

"Extremely rare and difficult to obtain. We secured two fine males but failed to get a female." (*Bourns and Worcester.*)

55. PHLEGŒNAS PLATENÆ Blasius.

MINDORO PUÑALADA.

Phlogœnas platenæ "BLASIUS," HARTERT, Jour. für Ornith. (1891) 302; SALVADORI, Cat. Birds Brit. Mus. (1893), **21**, 588; SHARPE, Hand-List (1899), **1**, 88; MCGREGOR and WORCESTER, Hand-List (1906), 15.

Mindoro (*Platen, Schmacker, Bourns & Worcester, McGregor*).

Adult (*sexes similar*).—Head and neck dark metallic green changing to amethystine; scapulars, back, and rump chestnut, many of the feathers edged with metallic green; below white becoming faint buff or ochraceous on abdomen, flanks, and tail-coverts; finely speckled with gray on sides of breast; red crop-patch very small; alula, primaries, and primary-coverts brown; secondaries and coverts chestnut, except some of the lesser series which are blackish with broad light gray tips forming a conspicuous patch; upper tail-coverts and middle pair of tail-feathers gray, remainder of rectrices blackish with gray tips. Iris purple; bill black; legs dark rose-color; nails gray. Length, 275 to 285. A male measures: Wing, 150; tail, 106; exposed culmen, 20; tarsus, 34. A female: Wing, 141; tail, 100; exposed culmen, 20; tarsus, 34.

Two nests with eggs were collected on the Baco River in 1905. The first was taken April 28, and was placed 1.5 meters from the ground on a horizontal limb of a small tree. The two eggs were advanced in incubation. They measure 30 by 22 and 29 by 22. The second nest was similarly placed in a shrub. The nest measures 200 by 280 mm. across the top and is very shallow, the outside depth being about 50 mm. On the bottom are a number of rather large leaves and sticks, topped by fine rootlets and spiral plant-tendrils. The materials were poorly put together so that a large part of the bottom fell off when the nest was removed from its site. The two eggs were well incubated. They measure 29 by 22 and 30 by 21. Their color is light cream.

"Common in the old forests in the interior of Mindoro, but very difficult to shoot. We found its nest in a tangle of vines about two meters above the ground. The female flew from the nest to the ground and pretended to be lame. The nest, which contained two young birds, was found in the month of May." (*Bourns and Worcester MS.*)

Subfamily CALŒNADINÆ.

Genus CALŒNAS Gray, 1840.

The genus *Calœnas* is distinguished by having the feathers of the neck long, narrow, and pointed; bill deep, with a knob on the base of culmen; legs and feet large, covered with large transverse plates; tail short and square.

56. CALŒNAS NICOBARICA (Linnæus).

NICOBAR PIGEON.

Columba nicobarica LINNÆUS, Syst. Nat. ed. 10 (1758), **1**, 164.
Calœnas nicobarica SALVADORI, Cat. Birds Brit. Mus. (1893), **21**, 615; BLANFORD, Fauna Brit. Ind. Bds. (1898), **4**, 24, fig. 5 (head); SHARPE, Hand-List (1899), **1**, 91; OATES, Cat. Birds' Eggs (1901), **1**, 106; MCGREGOR and WORCESTER, Hand-List (1906), 15.

Dun-dú-nai, native name.

Mindoro (*Steere Exp.*, *Bourns & Worcester*); Negros (*Bourns & Worcester*); Palawan (*Platen*); Sibutu (*Everett*); Siquijor (*Celestino*); Sulu (*Bourns & Worcester*); Talaran, off Basilan (*Freer*); Tawi Tawi (*Bourns & Worcester*). Nicobar and Greater Sunda Islands, Mergui and Bismark Archipelagos, Moluccas to New Guinea.

Adult male.—Head, neck, throat, and breast dark slate or blue-black; long neck-plumes, mantle, back, wing-coverts, and some of the inner secondaries bright metallic green, blue, or bronze-red changing with the light; primaries and outer secondaries black, more or less edged with blue; tail and its coverts pure white; abdomen, flanks, and thighs blue-black with more or less metallic green. Wing, 250; tail, 82; culmen from base, 24; tarsus, 40.

"*Female.*—Similar to the male but smaller, narrow feathers of the neck shorter, and also frontal knob smaller.

"*Young.*—Like the female, but the tail greenish black." (*Salvadori.*)

"Rare in all the islands visited by us except Tawi Tawi, where it is very common. Invariably found on the ground in deep woods. It rises very heavily and with much noise, always alighting in low trees, and then flying from tree to tree if disturbed. Iris dark brown; legs dark purple; upper surface of feet dark purple; lower surface yellow; nails yellow; bill black. Seven specimens average as follows: Length, 346; culmen, 23; wing, 241; tail, 86; tarsus, 38; middle toe and claw, 48." (*Bourns and Worcester MS.*)

Order RALLIFORMES.

RAILS, GALLINULES, AND COOTS.

Size medium to small; body compressed; thighs very muscular; legs rather long; toes long; wing short and rounded; tail short and soft, composed of ten or twelve feathers; bill strong but variable in form; long and slightly curved in typical rails, short and thick in the crakes, subconical and heavy in *Porphyrio;* nostrils pervious and variable in shape; wing usually bearing a short spine or a flattened knob. Most of the species inhabit marsh-land, rice-fields, or thick beds of reeds bordering ponds and streams; *Rallina*, *Amaurornis*, and *Gallicrex* are often found in dry fields or underbrush at considerable distances from water.

The nest is placed on the ground and well concealed among reeds or bunches of grass; usually situated near water or marshy ground. The eggs vary in number from four to ten, and are usually much spotted and streaked. The downy young are coal-black.

Family **RALLIDÆ.**

Characters same as those given for the Order.

Subfamilies.

a^1. Toes without webs or lobes .... **Rallinæ** (p. 66)
a^2. Toes lobate .... **Fulicinæ** (p. 81)

Subfamily RALLINÆ.

Genera.

a^1. No frontal shield.
  b^1. Bill more slender; exposed culmen equal to middle toe without claw. **Hypotænidia** (p. 66)
  b^2. Bill stouter; exposed culmen much less than middle toe without claw.
    c^1. Culmen not swollen at base; wing less than 140 mm.
      d^1. Tarsus longer than middle toe with claw .... **Rallina** (p. 69)
      d^2. Tarsus about equal to middle toe with claw or shorter.
        e^1. Culmen decidedly longer than hind toe with claw; under tail-coverts banded with white.
          f^1. Smaller; wing, 90 mm. or less; forehead, throat, and breast slate-gray. **Porzana** (p. 71)
          f^2. Larger; wing, 100 mm. or more; forehead, throat, and breast chestnut. **Limnobænus** (p. 73)
        e^2. Culmen but little longer than hind toe with claw; under tail-coverts unbanded .... **Poliolimnas** (p. 73)
    c^2. Culmen slightly swollen at base but not forming a frontal shield; wing more than 150 mm .... **Amaurornis** (p. 75)
a^2. Frontal shield present; legs and feet long and heavy.
  b^1. Nostrils elongate; frontal shield narrower; terminal half of bill green or yellowish green.
    c^1. Under tail-coverts pure white; tarsus less than 65 mm.. **Gallinula** (p. 77)
    c^2. Under tail-coverts not white; tarsus more than 75 mm.. **Gallicrex** (p. 78)
  b^2. Nostrils small and circular; frontal shield wider; bill all red. **Porphyrio** (p. 80)

Genus HYPOTÆNIDIA Reichenbach, 1852.

Bill slender; abdomen and flanks black or brown, banded with white.

Species.

a^1. Chin white; upper parts more or less spotted with white.
  b^1. Smaller; wing less than 125 mm.; breast uniform; no white eyebrow. **striata** (p. 67)
  b^2. Larger; wing more than 140 mm.; breast barred with black and white; a white eyebrow .... **philippensis** (p. 67)
a^2. Chin black; upper parts uniform .... **torquata** (p. 68)

57. HYPOTÆNIDIA STRIATA (Linnæus).

BLUE-BREASTED RAIL.

Rallus striatus Linnæus, Syst. Nat. ed. 12 (1766), **1**, 262.
Hypotænidia striata Sharpe, Cat. Birds Brit. Mus. (1894), **23**, 33; Hand-List (1899), **1**, 95; Oates, Cat. Bird's Eggs (1901), **1**, 111; McGregor and Worcester, Hand-List (1906), 15.

Tic-líng, general name for rails.

Calamianes (*Bourns & Worcester*); Cebu (*Everett*); Guimaras (*Steere Exp.*); Leyte (*Everett*); Luzon (*Cuming, McGregor, Gevers*); Mindanao (*Everett, Steere Exp., Bourns & Worcester, Goodfellow*); Mindoro (*McGregor, Porter*); Negros (*Steere Exp., Keay*); Palawan (*Celestino, White*); Panay (*Steere Exp., Bourns & Worcester*); Samar (*Steere Exp.*); Sibuyan (*Bourns & Worcester*); Siquijor (*Bourns & Worcester*); Sulu (*Guillemard*). Burmese countries to China, Malay Peninsula, Indo-Malay Islands, Southern India, Ceylon, Formosa, Celebes.

Adult male.—Above olive-brown, feathers centered with black and barred with broken white lines; crown, neck, and sides of neck dull chestnut, brighter on the last; center of crown blackish; chin and upper throat, lores, sides of face, and ear-coverts, lower throat, fore neck, and breast slate-gray; posterior lower part of body, under wing-coverts, and axillars blackish barred with white; alula blackish brown; primary-coverts and primaries blackish brown spotted and barred with white; tail and its coverts similar to the back. "Basal half of bill rose-pink, the anterior half horn-color; legs and toes deep olive-brown; claws pale brown; iris red." (*Oates.*) Length, 246; culmen, 38; wing, 120; tail, 47; tarsus, 37.

"*Adult female.*—Similar to the male, but paler and decidedly more olive, head not so bright chestnut; white bars on lower parts much tinged with fulvous. Length, 240; culmen, 35; wing, 110; tail, 41; tarsus, 35.

"In winter the plumage is entirely overshaded with olive-brown and there is a distinct fulvescent tinge on abdomen and under tail-coverts, almost hiding the black bars on the latter.

"*Young.*—Differs from the adults in having the bill black, and the upper surface much darker and without any white spots and bars on the back; head blackish, and back darker olive-brown with broad black centers to the feathers; no rufous on the head or sides of crown and sides of neck." (*Sharpe.*)

58. HYPOTÆNIDIA PHILIPPENSIS (Linnæus).

PECTORAL RAIL.

Rallus philippensis Linnæus, Syst. Nat. ed. 12 (1766), **1**, 263.
Hypotænidia philippinensis Sharpe, Cat. Birds Brit. Mus. (1894), **23**, 39; Hand-List (1899), **1**, 96; Oates, Cat. Birds' Eggs (1901), **1**, 113; McGregor and Worcester, Hand-List (1906), 16.

Batan (*Edmonds*); Luzon (*Everett, Whitehead, McGregor*). Pacific Islands, Malay Archipelago, Australia, New Zealand.

"*Adult male.*—General color above ochraceous-brown, all the feathers black, with ochraceous edgings, and spangled with white spots on the mantle and back; lower back and rump ochraceous-brown, with white centers to the feathers, but no white spots; wing-coverts like the back, but more uniform, and with scarcely any spots on the lesser and median series, the greater series, however, having large white spots and intermediate bars of black; alula black, checkered with white spots and bars; primary-coverts rufous, olive-brown at tip and banded with black; quills rufous, banded with black, and black at tips, the first two primaries checkered on the outer web and barred on the inner web with white; secondaries blackish, externally and at the tips ochraceous-brown, with numerous ovate spots or bars, the innermost secondaries ochraceous-brown, with broad black centers resembling the back; tail-feathers ochraceous-brown centered with black; crown of head olive-brown, with black longitudinal spots to the feathers; hinder neck ferrugineous, mottled with blackish centers to the feathers, which are edged with olive-brown, obscuring the rufous; lores and broad band through the eye dusky brown, becoming rufous on the ear-coverts and extending to the sides of the neck, where it is a little brighter rufous; over the lores a white band extending above the eye, and continued in a broad band of light ashy gray above the ear-coverts, and extending to the sides of the nape; cheeks light ashy gray, extending over the fore neck, which is washed with brown; fore part of the cheeks and throat white, remainder of under surface white, with black bars, very distinct, but narrow on the sides of fore neck, broader and more regular on the sides of body, where the feathers have olive-brown tips; flank feathers distinctly barred with black and white, the black bands being the broader; feathers at the sides of the vent tawny-buff, black at the base, and barred with white; long under tail-coverts black, with white bars, tawny-buff at the ends, the lower coverts tawny-buff, with black bases; thighs tawny-buff, dusky brown behind, under wing-coverts black, broadly edged with white; axillars black, barred with white. 'Bill warm brown; feet and claws light grayish brown; iris indian-red.' (*Everett.*) Length, 292; culmen, 32; wing, 145; tail, 67; tarsus, 39; middle toe with claw, 47." (*Sharpe.*)

Female.—An immature female agrees with the description of the male but the lower throat and fore breast are obscured with slate-gray and a slight olive wash. Bill dull brick-red, the terminal third brown; iris red; legs and nails light brown. Length, 305; wing, 136; tail, 73; culmen, 30; tarsus, 39; middle toe with claw, 43. This species is rare in Luzon.

59. HYPOTÆNIDIA TORQUATA (Linnæus).

PHILIPPINE RAIL.

Rallus torquatus LINNÆUS, Syst. Nat. ed. 12 (1766), 1, 262.

Hypotænidia torquata SHARPE, Cat. Birds Brit. Mus. (1894), 23, 43; Hand-List (1899), 1, 96; MCGREGOR and WORCESTER, Hand-List (1906), 16.

Bantayan (*McGregor*); Bongao (*Everett*); Cagayancillo (*McGregor*); Camiguin N. (*McGregor*); Catanduanes (*Whitehead*); Cebu (*Everett, Bourns & Worcester, McGregor*); Dinagat (*Everett*); Leyte (*Everett*); Luzon (*Cuming, Meyer, Everett, Bourns & Worcester, Whitehead, McGregor*); Marinduque (*Steere Exp.*) Masbate (*Bourns & Worcester, McGregor*); Mindanao (*Steere Exp., Bourns & Worcester, Goodfellow*); Mindoro (*Bourns & Worcester, McGregor*); Negros (*Everett, Keay*); Panay (*Steere Exp., Bourns & Worcester*); Romblon (*Bourns & Worcester, McGregor*); Samar (*Steere Exp., Bourns & Worcester*); Sibuyan (*McGregor*); Siquijor (*Bourns & Worcester, Celestino*); Ticao (*McGregor*); Verde (*McGregor*).

Adult (*sexes alike*).—Above olive-brown with a few, obscure, black lines on forehead; lores and circumocular area black, continued as a wide black band behind eye to side of nape; below this a wide white band from gape to neck, slightly washed with chestnut at its end; chin gray; throat and lower part of face black; lower throat and rest of lower parts black profusely banded with white; vent and under tail-coverts washed with clay-brown; a wide band of chestnut across breast; under wing-coverts and axillars barred with black and white like the breast. Iris red; bill, legs, and nails brown. Three males: Length, 317 to 330; wing, 151 to 155; tail, 54 to 65; exposed culmen, 41 to 43; tarsus, 52 to 53; middle toe with claw, 52, 55. Two females: Length, 305, 317; wing, 142, 144; tail, 51, 60; exposed culmen, 39, 41; tarsus, 51, 52; middle toe with claw, 51, 52.

Young.—Resembles the adult but has more white on the chin; band across breast wider and olive-brown; vent and under tail-coverts barred with reddish brown.

"*H. torquata* usually deposits four eggs, more rarely three. The ground-color of the egg is creamy white, sparingly marked with spots and a few blotches of brown varying from dark chocolate to reddish, and with more numerous spots and blotches of pale lilac; all the markings more numerous at the larger end. Ten eggs average 38 by 28.4." (*Bourns and Worcester MS.*)

The Philippine rail is the most abundant species of its family with the possible exception of *Poliolimnas cinereus;* both species are often taken in snares.

Genus RALLINA Reichenbach, 1849.

The species of this genus are of small size with short stout bills; middle toe with claw shorter than tarsus; head, neck, and chest chestnut; sides and abdomen barred with white.

Species.

a^1. Wing-coverts broadly barred with white or buffy-white..............	**fasciata** (p. 70)
a^2. Wing-coverts uniform or with few irregular white bars....	**eurizonoides** (p. 70)

60. **RALLINA FASCIATA** (Raffles).

MALAY BANDED CRAKE.

Rallus fasciatus RAFFLES, Trans. Linn. Soc. (1822), **13**, pt. 2, 328.
Rallina fasciata SHARPE, Cat. Birds Brit. Mus. (1894), **23**, 75; Hand-List (1899), **1**, 99; MCGREGOR and WORCESTER, Hand-List (1906), 16.

Balabac (*Everett*); Mindoro (*Porter*); Palawan (*Whitehead, Platen*). Burmese provinces, Malay Peninsula, Indo-Malayan Islands, Halmhéra, Pelew Islands.

"*Adult male.*—General color above ruddy brown, scapulars like the back; rump a little more olive-brown; upper tail-coverts and tail-feathers reddish brown; lesser and median coverts ruddy brown, with buffy white bars, each of which is margined with black; greater coverts black, rather broadly barred with white, as well as the alula and primary-coverts; quills blackish brown, checkered with white spots on outer web, and barred with white on the inner one; secondaries broadly barred and tipped with white, these white markings obsolete on the innermost, rufous-brown secondaries; crown, neck, sides of face, ear-coverts, cheeks, throat, and chest chestnut, a little lighter on the throat; breast and sides white, broadly banded with black, the abdomen white; thighs white externally, ashy brown internally; under tail-coverts barred with black and white or rufous-white; under wing-coverts and axillars white, barred with black like the inner lining of quills. 'Bill dark horny; orbital skin and gape vermilion; feet and exposed portion of tibia bright coral-red; iris dull cinnabar-red.' (*Davidson.*) Length, 216; culmen, 24; wing, 132; tail, 48; tarsus, 46.

"*Adult female.*—Similar to the male in color, but a little browner, and with narrower black bars on the under surface, the abdomen being, therefore, whiter. 'Bill plumbeous; feet coral-red; iris reddish brown.' (*Davidson.*) Length, 230; culmen, 23; wing, 124; tail, 48; tarsus, 38.

"*Young.*—Differs from the adult in being browner, the bands on the wing being buffy white: sides of face, fore neck, and chest ashy brown, with a rufous tinge; throat whitish, as also the breast and abdomen, which have a few bars of dusky blackish on the sides of the body." (*Sharpe.*)

61. **RALLINA EURIZONOIDES** (Lafresnaye).

PHILIPPINE BANDED CRAKE.

Gallinula eurizonoides LAFRESNAYE, Rev. Zool. (1845), 368.
Rallina euryzonoides SHARPE, Cat. Birds Brit. Mus. (1894), **23**, 78, pl. 8, fig. 1; Hand-List (1899), **1**, 100; MCGREGOR and WORCESTER, Hand-List (1906), 16.

Basilan (*McGregor*); Cagayancillo (*McGregor*); Cebu (*Everett*); Leyte (*Everett*); Luzon (*Cuming, Dussumier, Möllendorff, Bourns & Worcester*); Mindanao (*Bourns & Worcester*); Mindoro (*McGregor, Porter*); Negros (*Everett*); Panay (*Bourns & Worcester*); Sulu (*Guillemard*).

Adult male.—Back, wings, rump, tail, and tail-coverts dark brown with a slight olive tinge; head, neck, throat, and breast bright chestnut; posterior half of breast, abdomen, flanks, under tail-coverts, under wing-coverts and axillars black with wide white cross-bars, most conspicuous on the breast; thighs brown with but little white; primaries and secondaries blackish with wide white bars on inner webs. "Bill blackish, the base tinged light green, tip grayish; legs dull greenish leaden; feet dark lead-gray; nails gray; iris brilliant red." (*Everett.*) Length of a male from Basilan, 254; wing, 128; tail, 65; exposed culmen, 23; tarsus, 46; middle toe with claw, 37.

Adult female.—Differs little if any from the male. A specimen from Cagayancillo had upper mandible black; lower mandible pea-green, tip bluish; legs very dark green; nails dark brown. Length, 215; wing, 128; tail, 69; exposed culmen, 23; tarsus, 40; middle toe with claw, 35.

"So far as our observation goes *R. eurizonoides* is a woods form, all of our specimens having been killed in deep forest. Eyes orange-red; legs and feet dark olive; upper mandible nearly black; lower olive-green." (*Bourns and Worcester MS.*)

Genus PORZANA Vieillot, 1816.

Smallest of the Philippine rails; bill slender; middle toe with claw longer than tarsus.

Species.

a^1. Upper surface freckled with white .... **auricularis** (p. 71)
a^2. Upper surface uniform .... **plumbea** (p. 72)

62. PORZANA AURICULARIS Reichenbach.

PALLAS'S CRAKE.

Porzana auricularis REICHENBACH, Jour. für Orn. (1898), 139; SHARPE, Hand-List (1899), 1, 102; OATES, Cat. Birds' Eggs (1901), 1, 118.
Porzana pusilla (not of Pallas) SHARPE, Cat. Birds Brit. Mus. (1894), 23, 106; MCGREGOR and WORCESTER, Hand-List (1906), 16.

Luzon (*Heriot*). Eastern Siberia, Japan, China, Burmah, India, Ceylon, Borneo.

Adult male.—General color above dark ochraceous-brown with black centers to nearly all the feathers which are marked with white spots freckled with black; lower back black, freckled with white but only slightly washed with ochraceous-brown; upper tail-coverts ochraceous-brown with black centers; center of crown and hind neck dark ochraceous or reddish brown, only faintly streaked with black centers to the feathers; forehead and broad eyebrow as well as entire side of face, throat, and breast clear slaty gray; a distinct band of reddish brown along ear-coverts to sides of neck; abdomen, flanks, and thighs blackish, mottled with white bars; under tail-coverts deep black, barred with white; lesser and median wing-coverts uniform ochraceous-brown like the back, greater series with blackish centers and white frecklings; innermost secondaries like the back with broad black centers, the inner webs paler ochraceous-brown thereby forming a broad longitudinal band on each side of the back; alula, primary-coverts, and quills sepia-brown; edges of alula and first primary white; under wing-coverts and axillars dusky brown with a few white spots and bars; tail-feathers blackish, edged with dark ochraceous-brown. (Compiled from Sharpe, Catalogue of Birds). "Bill green, dusky on the culmen and at the tips; legs and feet green, with a yellowish tinge, sometimes brownish olive, sometimes pale green or pale olive-green; claws pale brown; iris normally red, sometimes briar-red, crimson, or carmine." (*Hume.*) Length, 178; culmen, 19; wing, 89; tail, 42; tarsus, 28; middle toe and claw, 38.

"*Adult female.*—Similar to the male in color. Length, 178; culmen, 16; wing, 94; tail, 43; tarsus, 28.

"*Young.*—Is like the adult on the upper surface and is similarly marked with black and white, but the general tone of the plumage is rather more rufous; the head like the back; sides of face rufous-brown, as also eyebrow; lores whitish; throat, breast, and abdomen dull white; fore neck and chest rufescent, barred across with dusky; lower flanks, vent, and under tail-coverts black, barred with white. 'Iris orange-red or reddish brown.' (*Hume.*)" (*Sharpe.*)

63. PORZANA PLUMBEA (Gray).

LEAD-COLORED CRAKE.

Crex plumbea GRAY, in Griffith ed. Cuvier (1829), **3**, 410.
Porzana tabuensis SHARPE, Cat. Birds Brit. Mus. (1894), **23**, 111 (part).
Porzana plumbea SHARPE, Hand-List (1899), **1**, 102; MCGREGOR and WORCESTER, Hand-List (1906), 16.

Luzon (*Meyer, McGregor*). New Hebrides, Australia, New Caledonia, New Zealand, Chatham, Samoa, and Fiji Islands.

Adult (*sexes alike*).—Above including wings reddish chocolate-brown; rump slightly darker; head and neck blackish; sides of face and under parts dark slate-gray; chin and throat more or less whitish; under tail-coverts black with white bars; edge of wing, first alula quill, and first primary white; under wing-coverts mottled with ashy brown and white. Bill black; iris and eyelids brick-red; legs and feet light salmon; nails dark brown. Ten specimens from the vicinity of Manila measure: Length, 165 to 178; wing, 69 to 78 (average 75); tail, 36 to 44 (average 40); exposed culmen, 15 to 19 (average 16); tarsus, 23 to 26 (average 25); middle toe with claw, 29 to 32 (average 31).

"*Young.*—Differs from the adult in having the throat white and the center of chest and abdomen for the most part white." (*Sharpe.*)

At times great numbers of this little rail are sold in the Manila markets, but I have never taken a specimen in the field.

Genus POLIOLIMNAS Sharpe, 1893.

Tarsus less than middle toe with claw and less than twice the culmen; plumage of under parts mostly white.

64. POLIOLIMNAS CINEREUS (Vieillot).

ASHY CRAKE.

Porphyrio cinereus VIEILLOT, Nouv. Dict. d'Hist. Nat. (1819), **28**, 29.
Poliolimnas cinereus SHARPE, Cat. Birds. Brit. Mus. (1894), **23**, 130; Hand-List (1899), **1**, 104; MCGREGOR and WORCESTER, Hand-List (1906), 17.

Basilan (*Bourns & Worcester, McGregor*); Bohol (*McGregor*); Calayan (*McGregor*); Cebu (*Steere, Everett, Bourns & Worcester*); Dinagat (*Everett*); Guimaras (*Steere Exp.*); Leyte (*Everett, Steere Exp.*); Luzon (*Bourns & Worcester, Cuming, Whitehead, McGregor*); Marinduque (*Steere Exp.*); Mindanao (*Everett, Bourns & Worcester*); Mindoro (*Bourns & Worcester, Porter*); Negros (*Bourns & Worcester*); Panay (*Bourns & Worcester*); Sibuyan (*McGregor*); Siquijor (*Steere Exp., Bourns & Worcester*); Ticao (*McGregor*). Oceania, Malayan Peninsula, Greater and Lesser Sunda Islands, Buru, Australia.

Adult (*sexes alike*).—General color above wood-brown; scapulars, inner secondaries, lower back, rump, and tail seal-brown; scapulars and inner secondaries with wide sandy brown edges; top of head black or dark slate-gray; a white line from bill over eye; a large loral space black, below this a white band separating black post-ocular space from ashy ear-coverts; lower throat, sides of neck, and sides of body ashy gray; chin, upper throat, thighs, and middle of breast and abdomen white; flanks, vent, and under tail-coverts sandy buff or clay-color; wings and tail dark brown; first primary edged with white. Iris bright red; bill yellowish brown; legs brown with greenish and yellowish tints; nails brown. Length, 190 to 203. Three males from Bohol measure: Wing, 91 to 98 (average 95); tail, 45 to 51 (average 48); exposed culmen, 23; tarsus, 36 to 39 (average 37.8); middle toe with claw, 46 to 52 (average 46).

Young.—The fully feathered young resembles the adult in color pattern but top of head and blackish loral band are brown and the ashy gray of ear-coverts, lower throat, and sides is replaced by yellowish buff. The downy young is coal-black.

A downy young bird was collected in Calayan, October 8, 1903, and a half-grown bird was collected in Ticao, April 22, 1902.

"Very common about lakes and fresh-water pools. Breeds abundantly in the tall grass and rushes. Called by the natives "y-a-gut-yút." (*Bourns and Worcester MS.*)

Genus LIMNOBÆNUS Sundevall, 1873.

In colors this genus resembles *Rallina* but has the middle toe with claw longer than the tarsus.

Species.

a^1. Flanks olive-brown with narrow whitish bars, the bars sometimes wanting. **fuscus** (p. 74)

a^2. Flanks white, barred with dusky blackish.................................... **paykulli** (p. 74)

65. LIMNOBÆNUS FUSCUS (Linnæus).

RUDDY CRAKE.

Rallus fuscus LINNÆUS, Syst. Nat. ed. 12 (1766), 1, 262.

Limnobænus fuscus SHARPE, Cat. Birds Brit. Mus. (1894), 23, 146; Hand-List (1899). 1, 105; OATES, Cat. Birds' Eggs (1901), 1, 120; McGREGOR and WORCESTER, Hand-List (1906), 17.

Cagayancillo (*McGregor*); Leyte (*Everett*); Luzon (*Cuming, Heriot, Steere Exp., Whitehead*); Mindanao (*Everett, Steere Exp.*); Mindoro (*McGregor*); Negros (*Keay*). Ceylon, Indian and Malay Peninsulas, Burmese countries to China and Japan, Christmas Island, Java, Borneo.

Adult male.—Above including wing-coverts dark olive; forehead, sides of head, chin, throat, and breast vinous-chestnut, chin more or less whitish; abdomen and flanks olive-brown with narrow white bars; vent and under tail-coverts blackish with wider white bars; wings and tail brown; axillars and under wing-coverts fringed with white. Iris brick-red, a narrow inner circle brown; bill dark brown, lighter at tips; legs red; nails brown. A male from Manila market, September 2, 1904, measures: Length, 190; wing, 93; tail, 42; exposed culmen, 20; tarsus, 30; middle toe with claw, 35.

Adult female.—Similar to the male. A female from Cagayancillo, February 23, 1903, measures: Length, 210; wing, 96; tail, 47; exposed culmen, 18.5; tarsus, 32; middle toe with claw, 37. A breeding female from Manila market, August 20, 1902, measures: Length, 210; wing, 98; tail, 47; exposed culmen, 20; tarsus, 32; middle toe with claw, 37.

Young.—Manila market, August 14, 1902. Above olive and blackish brown, chin and throat white; remainder of under parts sooty brown mixed with white. Iris light green; upper mandible black; lower dark flesh; legs brown; nails black. Length, 200.

This little crake is either very shy or very scarce as few specimens are seen. It is usually found in dry brush-land or on forest paths and is extremely quick in making its escape.

66. LIMNOBÆNUS PAYKULLI (Ljungh).

PAYKULL'S CRAKE.

Rallus paykulli LJUNGH, Sver. Vet. Akad. Handl. (1813), 258.

Porzana paykulli STEERE, List Birds & Mams. Steere Exped. (1890), 82.

Limnobænus paykulli SHARPE, Cat. Birds Brit. Mus. (1894), 23, 149; Hand-List (1899). 1, 105; McGREGOR and WORCESTER, Hand-List (1906), 17.

Basilan (*Steere Exp.*). China, Eastern Siberia, Malay Peninsula, Java, Borneo.

"*Adult male.*—Similar to *L. fuscus*, and having red legs like the latter species; upper surface ashy brown, as also the wings and tail; head ashy brown, with a rufous tinge on the forehead; lores, sides of face, throat, and breast pale vinous-chestnut; chin whitish; sides of breast ashy brown; flanks and thighs white, barred with dusky blackish; under tail-coverts black, barred and tipped with white; axillars and under wing-coverts white, with dusky blackish bars. 'Bill bluish gray, blackish on the culmen and about the tip, pea-green about the base; inside of mouth flesh-color; iris crimson; eyelid red; legs and toes salmon-color, brownish on the under surface of the tarsi, on the toes, and on their soles.' (*Swinhoe.*) Length, 215; culmen, 28; wing, 119; tail, 55; tarsus, 38.

"*Young* (*type of Rallina rufigenis*).—Similar to the adult, but duller above, paler rufous below, the abdomen white with a vinous tinge; throat white; wing-coverts much more numerously banded with white." (*Sharpe.*)

Steere is the only author who has recorded this species from the Philippines.

Genus AMAURORNIS Reichenbach, 1852.

Bill rather stout; base of upper mandible slightly swollen; legs and feet large; middle toe with claw longer than tarsus; plumage with neither spots nor bars.

Species.

a^1. Chin, throat, and breast slate-gray.. **olivacea** (p. 75)
a^2. Chin, throat, and breast pure white.. **phœnicura** (p. 76)

67. AMAURORNIS OLIVACEA (Meyen).

PHILIPPINE WATERHEN.

Gallinula olivacea MEYEN, Nova Acta C. L-C. Acad. Nat. Cur. (1834), **16**, Suppl. 1, 109, pl. 20.

Amaurornis olivacea WALDEN, Trans. Zool. Soc. (1875), **9**, 231, pl. 33, fig. 1; SHARPE, Cat. Birds Brit. Mus. (1894), **23**, 153; Hand-List (1899), **1**, 106; GRANT and WHITEHEAD, Ibis (1898), 247 (eggs); OATES, Cat. Birds' Eggs (1901), **1**, 120.

Amauronis olivacea McGREGOR and WORCESTER, Hand-List (1907), 17 (error).

Tin-gaó, Ticao; *ba-na-tí-ran*, Calayan; *ba-hu-goc'*, Batan.

Batan (*McGregor*); Bohol (*McGregor*); Calayan (*McGregor*); Cebu (*Everett, Bourns & Worcester, McGregor*); Leyte (*Everett*); Luzon (*Meyen, Everett, Steere Exp., Bourns & Worcester, Whitehead*); Masbate (*McGregor*); Mindanao (*Platen, Goodfellow*); Mindoro (*McGregor*); Negros (*Keay*); Panay (*Bourns & Worcester*); Samar (*Bourns & Worcester*); Siquijor (*Bourns & Worcester*); Ticao (*McGregor*).

Adult (*sexes alike*).—Above olive-brown; below bluish slate-gray, most intense on breast, lighter on chin, throat, and middle of abdomen; flanks and thighs dull olive-brown; under tail-coverts ruddy brown. Iris red;

bill sea-green; legs dirty yellow; nails brown. Length of a male from Bohol, 330; wing, 175; tail, 63; culmen from base, 37; tarsus, 65; middle toe with claw, 70. Length of a male from Calayan, 305; wing, 178; tail, 57; culmen from base, 41; tarsus, 69; middle toe with claw, 73. A female from Mindoro, May 6, 1905, measures: Length, 290; wing, 165; tail, 53; culmen from base, 37; tarsus, 57; middle toe with claw, 64.

"A common bird, snared in abundance by the natives. Two sets of eggs were obtained by us in Siquijor. The nest was in each case placed on a slight elevation, and was a mere heap of dried leaves and grasses. The ground-color of the eggs is rather a rich creamy buff. They are heavily blotched and spotted with a rich light chocolate-brown, the blotches being more numerous at the larger end, where they are often confluent. A few inconspicuous lilac markings are also present. The eggs measure from 40.6 to 43 in length, and from 29 to 32 in greatest breadth." (*Bourns and Worcester MS.*)

Oates describes two eggs collected in Siquijor in February by the Steere Expedition. "The eggs of the Philippine crake are of a broad oval form, and they have but little gloss. The ground is creamy white, and this is spotted, streaked, and blotched, more thickly at the larger end than elsewhere, with reddish brown and underlying pale purple. Two examples measure respectively 41.9 by 30.9; 39.3 by 28.7."

A nest of this species found at Balete, Mindoro, was well hidden in a clump of saw-grass. It was very weakly made of dry grass and had a deep cup. The single egg was heavily incubated when taken on May 20. It measures 41.6 by 30.9 mm. The ground-color is pale creamy white. Small spots and fine dots of reddish brown are scattered over the whole shell, but more numerously on the larger end where there are also two large blotches of lavender. A few small lavender dots are scattered over the entire surface.

68. AMAURORNIS PHŒNICURA (Pennant).

WHITE-BREASTED WATERHEN.

Gallinula phœnicurus Pennant, Ind. Zool. (1769), **10**, pl. 9.

Amaurornis phœnicura Sharpe, Cat. Birds Brit. Mus. (1894), **23**, 156; Hand-List (1899), **1**, 106; Oates, Cat. Birds' Eggs (1901), **1**, 121, pl. 9, fig. 5.

Amaurornis phœnicura Blanford, Fauna Brit. Ind. Birds (1898), **4**, 173, fig. 36 (head).

Amauronis phœnicura McGregor and Worcester, Hand-List (1906), 18 (error).

Sally-quawk, in general use.

Basilan (*Bourns & Worcester, McGregor*); Bohol (*McGregor*); Bongao (*Everett*); Cagayan Sulu (*McGregor*); Calamianes (*Bourns & Worcester*); Cebu (*McGregor*); Marinduque (*Steere Exp.*); Mindanao (*Everett, Martens, Koch & Schadenberg, Steere Exp., Bourns & Worcester*); Mindoro (*Bourns & Worcester,* *McGregor*); Palawan (*Platen, White*); Panay (*Bourns & Worcester*); Siquijor (*Bourns & Worcester, Celestino*); Sulu (*Guillemard*); Tawi Tawi (*Bourns & Worcester*). Indian and Malay Peninsulas, Ceylon, Indo-Burmese Provinces. China, Greater and Lesser Sunda Islands, Celebes.

Adult (*sexes alike*).—Above including wings dark slate-gray; middle of neck, back, and inner secondaries washed with olive; lower back, rump, and upper tail-coverts dull brown; forehead, eyebrow, face, sides of neck, chin, throat, and breast white; from behind eye a black streak separating the gray above from the white below, abdomen and thighs washed with light chestnut; flanks and under tail-coverts chestnut; some of the upper tail-coverts slightly chestnut; alula and primaries blackish, first feather of each edged with white; edge of wing white; under wing-coverts blackish, fringed with white; tail blackish. Iris dark brown; upper mandible red behind nostril, remainder dark green; lower mandible pea-green; legs yellowish brown or light brown.

Length, 292 to 305. A male from Danao, Cebu, August 2, 1906, measures: Wing, 147; tail, 63; culmen from base, 38; tarsus, 56; middle toe with claw, 65. A male from Palawan, January 17, 1906, measures: Wing, 156; tail, 69; culmen from base, 37; tarsus, 56; middle toe with claw, 64. A female from Basilan, December 21, 1906, measures: Wing, 147; tail, 58; culmen from base, 35; tarsus, 53; middle toe with claw, 63.

A very common bird in marshy regions and along fresh-water streams. Called “sally-quawk” by the natives from its notes.” (*Bourns and Worcester MS.*)

Genus GALLINULA Brisson, 1760.

Bill moderate, the culmen extending backward on the forehead to opposite center of eye and forming a tumid shield with rounded posterior margin; toes with a narrow fold on each side; middle toe without claw longer than tarsus; plumage black with white on flanks and under tail-coverts.

69. GALLINULA CHLOROPUS (Linnæus).

MOORHEN.

Fulica chloropus Linnæus, Syst. Nat. ed. 10 (1758), **1**, 152.

Gallinula chloropus Sharpe, Cat. Birds Brit. Mus. (1894), **23**, 169; Hand-List (1899), **1**, 107; Blanford, Fauna Brit. Ind. Bds. (1898), **4**, 175, fig. 37 (head); Grant and Whitehead, Ibis (1898), 246 (eggs); Oates, Cat. Birds' Eggs (1901), **1**, 123; McGregor and Worcester, Hand-List (1906), 18.

Ca-rab' i-tu-mon', Bohol.

Basilan (*McGregor*); Bohol (*McGregor*); Calayan (*McGregor*); Cebu (*Everett*); Guimaras (*Bourns & Worcester*); Leyte (*Everett*); Luzon (*Meyer, Everett, Steere Exp., Bourns & Worcester, Whitehead, McGregor*); Mindanao (*Everett, Bourns & Worcester*); Mindoro (*Bourns & Worcester*); Negros (*Keay*); Panay (*Bourns & Worcester*); Samar (*Whitehead*). Europe, Asia, Africa, Madagascar, Mauritius.

Adult male.—General color dark slaty gray; head, neck, chin, and throat black shaded into slate-gray posteriorly; back, rump, upper tail-coverts, and inner wing-feathers dark olive-brown; feathers on middle of abdomen more or less fringed with white; several long flank feathers with long white stripes on outer webs; crissum black; under tail-coverts pure white; wings blackish; edge of wing and of first primary white; under wing-coverts and axillars blackish with white tips; tail blackish. "Frontal shield and two-thirds of the bill deep lake-red, and tip of the latter greenish yellow for about one-third; legs olive-green, the broad scaling on the fore part of the tarsus, and the scales of the upper part of the toes, lemon-yellow; joint of heel dusky olive-green, with a shade of lemon-yellow immediately below the garter, which is dark lake-red; iris reddish." (*Sharpe.*) Two males from Bohol measure: Wing, 157, 162; tail, 70, 73; bill from posterior margin of frontal shield, 43, 45; bill from nostril, 15, 16; tarsus, 52; middle toe with claw, 76, 77.

Adult female.—Similar to the male but smaller. A female from Basilan measures: 292 in length; wing, 138; tail, 63; culmen from posterior margin of frontal shield, 37; bill from nostril, 14; bill from gape, 27; tarsus, 49; middle toe with claw, 74.

Young.—Above richer brown, top of head washed with brown; below lighter than adult; chin, upper throat, and sides of face white mixed more or less with brown and dark gray; feathers on rest of under parts more or less fringed with brown and white; middle of abdomen pure white.

"The eggs of the moorhen are normally of a broad oval form and have a small amount of gloss. The ground-color varies much, being creamy white, pale greenish white, pale buff or pinkish buff. The markings consist of specks, spots, and bold blotches of deep reddish brown, and a few underlying pale purple spots. The combinations in which these markings occur are numerous. In some, the markings are all small and densely set over the shell; in others, spots are combined with huge blotches which are often confluent. As a rule the larger end of the egg is more thickly marked than the other parts. A few specimens are devoid of all markings except some pale purple blotches. Examples vary from 39.3 to 55 in length and from 27.9 to 36 in breadth." (*Oates.*)

Four eggs collected by Whitehead in Samar, August 25, 1896, are thus described: "The eggs are perfectly similar to those laid by European moorhens, but the number of eggs in the clutch, as well as their relatively smaller size, is noteworthy. Measurements 42 by 39." (*Grant and Whitehead.*)

Genus GALLICREX Blyth, 1849.

Bill stout and of moderate length; frontal shield pointed behind, much larger in males than in females, and in the breeding season terminating in a free horn-like process; legs and toes very long and heavy.

70. GALLICREX CINEREA (Gmelin).

WATERCOCK.

Fulica cinerea GMELIN, Syst. Nat. (1788), **1**, pt. 2, 702.

Gallicrex cinerea SHARPE, Cat. Birds Brit. Mus. (1894), **23**, 183; Hand-List (1899), **1**, 108; GRANT, Ibis (1895), 265; BLANFORD, Fauna Brit. Ind. Bds. (1898), **4**, 176, fig. 38, (head); OATES, Cat. Birds' Eggs (1901), **1**, 125; pl. 10, fig. 6; MCGREGOR and WORCESTER, Hand-List (1906), 18.

Can-nu-toc', Manila; *tub-tub*, Ticao; *tu-yud'*, Bohol; *tug-tug*, Masbate.

Bantayan (*McGregor*); Bohol (*McGregor*); Catanduanes (*Whitehead*); Cebu (*Bourns & Worcester*); Luzon (*Dussumier, Cuming, Heriot, McGregor*); Marinduque (*Steere Exp.*); Masbate (*Bourns & Worcester*); Mindanao (*Bourns & Worcester, Goodfellow*); Mindoro (*Bourns & Worcester*); Negros (*Keay*); Panay (*Bourns & Worcester*); Sibuyan (*McGregor*); Sulu (*Guillemard*); Tablas (*Celestino*); Ticao (*McGregor*). Ceylon, Burmese provinces to China and Japan, Malay and Indian Peninsulas, Greater Sunda Islands.

"*Adult male.*—General color above black, with a few remains of ashy gray margins to the feathers, or with brown edgings to the scapulars, lower back, and rump; upper wing-coverts blackish, broadly edged with ashy gray; bend of wing white; alula, primary-coverts, and quills blackish brown, slightly shaded with gray externally, first primary externally white; inner secondaries edged with light brown; tail-feathers blackish, edged with brown; head and neck all round and under surface of body deep black; a few whitish feathers on lower abdomen; under tail-coverts buffy white, with black bars; under wing-coverts black, barred and edged with white; axillars black like the sides of the breast. 'Frontal shield and base of upper mandible deep red; remainder of bill yellow, a spot on each side of lower mandible red; frontal process or horn pinkish; legs plumbeous green; claws horn-color; iris reddish brown; eyelids plumbeous.' (*Oates.*) Length, 419; culmen with frontal shield, 69; wing, 218; tail, 74; tarsus, 79.

"According to Oates, the male in winter has the fleshy process on the head reduced in size or nearly obsolete.

"*Adult female.*—General color above dark brown with a slight ashy shade, the feathers with sandy buff margins, so that the upper surface appears streaked; lower back and rump rather more uniform; wing-coverts ashy gray, the greater series browner, with fulvous margins like the inner secondaries, which have dusky frecklings also on the outer web; alula ashy brown, the outer feathers edged with white; primary-coverts and quills brown, externally shaded with ashy; first primary white along the outer web; tail-feathers dark brown, edged with lighter brown; crown uniform dark brown, forming a cap; hind neck like the back; lores, eyebrow, sides of face, and sides of neck dark sandy buff; throat and center of the abdomen white; remainder of under surface from the lower throat downwards pale isabelline buff, crossed with narrow wavy bars of dusky brown; lower flanks rather more uniform ashy brown; under tail-coverts more tawny, with dusky brown cross-bars; under wing-coverts and axillars uniform ashy brown, the edge of the wing white; quills uniform ashy brown below. Length, 305; culmen 38; wing, 173; tail, 66; tarsus, 68; middle toe with claw, 91.

"*Young.*—Resembles the old female, but much more tawny everywhere, especially on the sides of face, neck, and under parts, the latter being much more narrowly and indistinctly barred with dusky brown than in the adult birds." (*Sharpe.*)

"A male and female adult from Catanduanes in the brownish buff plumage of autumn and winter. Neither Dr. Sharpe, in his Catalogue, nor *any other* author, so far as I am aware, makes the slightest reference to the autumn change of plumage which is so marked in the male, only the breeding dress being described, in which the whole of the hind neck and under parts, as well as the general color of the upper parts, are black. In the *fully adult male* before me the whole of the under parts from the throat downward are pale buff with rather fine, somewhat wavy, brownish black bars, except on the middle of the belly, which is paler and nearly devoid of markings; the under tail-coverts have the ground-color more rufous-buff; the rest of the plumage also resembles that of the *female*. The latter does not appear to have any different breeding plumage, or, if she changes, the feathers are very similar to those of the autumn dress." (*Grant.*)

"Abundant about paddy-fields in some localities. It nests on the ground in these fields, and the natives found a number of nests for us while cutting rice. They call the bird *tug-túg* from its note." (*Bourns and Worcester MS.*)

In an adult male from Sibuyan, June 7, 1904, the head and mantle are light slate-gray with dark centers to the feathers and the lower parts are pale slate-gray with numerous light colored cross-lines. Frontal shield and bill to proximal edge of nostril scarlet; base of lower mandible scarlet; rest of bill pea-green; legs dull green; nails dark gray. Length, 432; wing, 241; tail, 86; bill from gape, 37; bill from nostril, 21; tarsus, 81; middle toe with claw, 94.

In an adult male from Guindulman, Bohol, June 3, 1906, the head, face, and lower parts are largely black and except on top of head, the greater number of the feathers are fringed with pale buff or white. Length, 419; wing, 235; tail, 87; bill from gape, 36; bill from nostril, 19; tarsus, 77; middle toe with claw, 94.

Genus PORPHYRIO Brisson, 1760.

Bill stout and very deep; nostrils circular; frontal shield broad, covering the entire forehead, its posterior border square; legs and toes very long and heavy.

71. **PORPHYRIO PULVERULENTUS** Temminck.

PHILIPPINE BLUE GALLINULE.

Porphyrio pulverulentus TEMMINCK, Pl. Col. (1826), **5**, pl. 405; SHARPE, Cat. Birds Brit. Mus. (1894), **23**, 207; Hand-List (1899), **1**, 109; McGREGOR and WORCESTER, Hand-List (1906), 18.

Ae-bag, Manila; *ca-rab a-bu-hon*, Bohol.

Bohol (*McGregor*); Luzon (*Steere Exp., McGregor*); Mindanao (*Mearns*); Mindoro (*Bourns & Worcester*).

Adult male.—General color hoary blue, lighter on head, neck, and fore breast; much darker, nearly navy blue on abdomen; crissum white; scapulars and upper back rich olive-brown or russet-brown, the feathers edged more or less with blue; lower back, rump, and upper tail-coverts duller brown; primaries black, their outer webs verditer-blue; short under wing-coverts blue, the longer ones black; tail blackish edged with verditer-blue.

In a male from the Manila market, March 24, 1903, the bill and shield were dusky cardinal; a space back of nostril and at base of lower mandible whitish; iris reddish brown; legs and feet reddish brown, joints dusky; nails brown. Length, 432; tail, 88; culmen from posterior margin of shield, 74; bill from gape, 41; bill from nostril, 32; tarsus, 93; middle toe with claw, 108.

Adult female.—Similar to the male. A female from Guindulman, Bohol, June 20, 1906, measures: Length, 394; wing, 236; tail, 88; culmen from posterior margin of shield, 67; bill from gape, 35; bill from nostril, 28; tarsus, 83; middle toe with claw, 99.

"*Young.*—Differs from the adult in being slightly duller in color, in having the quills externally washed with olive, and the breast and abdomen obscured by hoary whitish edgings to the feathers." (*Sharpe.*)

"Enomously abundant in the reeds about Lake Naujan in Mindoro, but a shy bird, and one not easily obtained except by snaring." (*Bourns and Worcester MS.*)

Subfamily FULICINÆ.

Genus FULICA Linnæus, 1758.

Anterior toes with a number of rounded lobes on each side; frontal shield rounded.

72. **FULICA ATRA** Linnæus.

BLACK COOT.

Fulica atra LINNÆUS, Syst. Nat. ed. 10 (1758), **1**, 152; Sharpe, Cat. Birds Brit. Mus. (1894), **23**, 210; Hand-List (1899), **1**, 109; OATES, Cat. Birds' Eggs (1901), **1**, 129; McGREGOR and WORCESTER, Hand-List (1906), 19.

U-luc' di-á-blo, Manila.

Luzon (*Heriot, McGregor*). Europe, Indian Peninsula, Mediterranean countries, northern and central Asia, China, Java, Sumatra, Celebes.

Adult male.—General color above slate-gray, lower back, rump, upper tail-coverts, and tail blackish; head, neck, chin, and throat black; under side of body pale slate or smoke-gray; crissum black; edge of wing and of first primary white; under wing-coverts and axillars smoke-gray. "'Bill very pale lavender, with a pinkish tinge; frontal shield ivory-white; tarsi and feet pearly gray, with a greenish tinge on the sides of the tarsus; garter orange-yellow; iris dark brown' (R. B. S., MS). Length, 368; culmen from base of shield, 34; wing, 218; tail, 56; tarsus, 33; middle toe and claw, 78." (*Sharpe.*)

Adult female.—Similar to the male. In a specimen from Laguna de Bay, Luzon, December 29, 1901, the following colors were noted: Iris dull red; frontal shield and bill white, tip pale horn-brown; feet slate; legs slate with a wash of pale green on middle of tarsi; garter-ring next to feathers dull orange. Wing, 209; tail, 61; culmen including frontal shield, 47; bill from nostril, 15; bill from gape, 32; tarsus, 59; middle toe with claw, 87.

"*Young.*—Much browner than the adult, feathers of head dusky blackish edged with white; lores, eyebrows, and sides of face white; under surface of body ashy whitish, browner on the flanks." (*Sharpe.*)

The black coot is fairly abundant on the Laguna de Bay, Luzon, and doubtless occurs in Mindanao. This bird frequents lakes and ponds and is seldom seen on land.

Order **COLYMBIFORMES.**

GREBES.

Water birds with tarsus extremely flattened and legs set far back on body; neck long; plumage dense; tail-feathers very short and soft; toes lobed; toes and nails very broad and flat; hind toe small and elevated. Eggs with a white chalky surface; nest a mass of reeds near the water often floating on the water.

Family **COLYMBIDÆ.**

Characters same as those given for the Order.

Genus TACHYBAPTUS Reichenbach, 1849.*

Characters same as those given for the Family.

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* The order Colymbiformes as used here is equivalent to order VIII Podicipediformes of Sharpe's Hand-List and not order IX Colymbiformes of that work. *Tachybaptus* Reichenbach is to be used for the genus or subgenus *Podiceps* Latham. Cf. Stone, *Auk* (1907), 24, 190; Allen, *Bull. Am. Mus. Nat. Hist.* (1907), 24, 24.

73. **TACHYBAPTUS PHILIPPENSIS** (Bonnaterre).

PHILIPPINE GREBE.

Colymbus philippensis BONNATERRE, Tabl. Encycl. Meth. (1790), **1**, 58, pl. 46, fig. 3.

Podicipes philippensis GRANT, Cat. Birds Brit. Mus. (1898), **26**, 511.

Podicipes philippinensis SHARPE, Hand-List (1899), **1**, 113; OATES, Cat. Birds' Eggs (1901), **1**, 133; MCGREGOR and WORCESTER, Hand-List (1906), 19.

Su-li-a'-sit, Manila; *ga-mao'*, Bohol.

Bohol (*McGregor*); Calayan (*McGregor*); Guimaras (*Steere Exp.*); Luzon (*Jagor, Heriot, Steere Exp., Bourns & Worcester, Whitehead, McGregor, Stafford*); Mindanao (*Mearns*); Panay (*Clarke*).* Borneo, southern China, Burmese provinces, Formosa, Hainan.

Adult in breeding plumage.—Above dark, glossy seal-brown; chin, fore throat, and cheeks blackish; throat, sides of neck, and ear-coverts chestnut; breast and abdomen silvery white, mixed with a little blackish brown and gradually shading into blackish brown on fore breast, sides, flanks, and lower belly; thighs blackish mixed with a little light chestnut; wings black; under wing-coverts, axillars, and tips of short secondaries white. "Iris straw-yellow; bill black, whitish at the tip; naked skin at base of bill and between rami of the mandible pale greenish yellow; legs blackish gray, with a slight tinge of green." (*Swinhoe.*) A male from Calayan, November 15, 1903, measures: Length, 280; wing, 107; culmen broken; tarsus, 33; middle toe with claw, 48.

The following data are from a female taken at Jala Jala, Laguna de Bay, Luzon, January 5, 1902. Feet bluish black; angle of mouth and base of lower mandible clear, pale pea-green; bill black with a light spot at tip. Wing, 100; exposed culmen, 23; tarsus, 33; middle toe with claw, 49. A female from Sevilla, Bohol, March 24, 1906, measures: Length, 254; wing, 102; exposed culmen, 23; tarsus, 33; middle toe with claw, 49.

The non-breeding bird has the chin and throat white and the chestnut reduced in extent and lighter in shade.

Young.—A half-grown downy young was obtained at Laguna de Bay, August 24, 1904. Above seal-brown with white tips to much of the down; middle of crown mottled with chestnut; a white line over eye; two diagonal white lines on each side of occiput, the anterior line continued along side of neck; chin, throat, and face mottled with white, black, and dark gray; fore breast, sides, and lower belly gray; middle of breast and belly white. Bill pale yellow mottled with blackish brown, tip gray; legs black. Length, 203.

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* Mr. W. Eagle Clarke informs me that he has received a specimen of the Philippine grebe from Panay.

A full-grown young bird has upper parts light brown; sides of head and neck buffy brown, mottled and streaked with white; chin and upper throat white; a wide dull buffy brown band around neck; breast and abdomen pure white; thighs buff-brown.

"Comparatively rare. Several specimens were secured by the Steere Expedition in a little pond in Guimaras. Fairly common in the Laguna de Bay, Luzon, but we failed entirely to find it in the Laguna de Naujan, Mindoro." (*Bourns and Worcester MS.*)

Order **PROCELLARIIFORMES.**

PETRELS AND SHEARWATERS.

Bill strong and moderately long, terminating in a strong, sharp, overhanging hook or nail; nostrils impervious and tubular, opening forward or upward; feet moderate; toes webbed; hind toe small and elevated, rarely absent. Oceanic birds of strong flight and wandering habits; colors black, brown, and white. Eggs white, deposited in burrows or among piles of loose stone; young covered with down and fed for some time before leaving the nest.

Families.

*a*¹. Smaller; wing less than 150 mm.. **Procellariidæ** (p. 84)
*a*². Larger; wing more than 300 mm.. **Puffinidæ** (p. 84)

Family **PROCELLARIIDÆ.**

Nasal tube prominent, vertically truncated and with a thin partition.

Subfamily **PROCELLARIINÆ.**

Genus OCEANODROMA Reichenbach, 1852.

Wing less than 180 mm.; tarsus not longer than middle toe with claw; tail emarginate or slightly forked; tarsus less than twice as long as culmen.

74. **OCEANODROMA** species McGregor.

PETREL.

'*Oceanodroma* sp. McGregor, Bull. Philippine Mus. (1904), 4, 12; McGregor and Worcester, Hand-List (1906), 19.

Luzon (*McGregor*).

The only specimen representing this genus and known to have been taken in the Philippines is in very poor condition and can not be determined specifically. It came aboard ship near Mariveles, Luzon, during a storm on July 28, 1903.

Family **PUFFINIDÆ.**

Nasal case low and broad; end of lower mandible hooked like the upper.

Subfamily PUFFININÆ.

Genus PUFFINUS Brisson, 1760.

Nasal tube obliquely truncate, its partition thick.

75. PUFFINUS LEUCOMELAS Temminck.

SIEBOLD'S SHEARWATER.

Puffinus leucomelas TEMMINCK, Pl. Col. (1836), pl. 587; RIDGWAY, Man. North Am. Bds. (1887), 62; SALVIN, Cat. Birds Brit. Mus. (1896), **25**, 370; SHARPE, Hand-List (1899), **1**, 123; MCGREGOR and WORCESTER, Hand-List (1906), 19.

Luzon (*Cuming*). Japan and Korea south to Australia.

"*Adult male.*—Upper surface brown, feathers of body and wings with paler dusky edges; anterior portion of crown, forehead, sides of head, and neck white, each feather with a dark disk, which is narrow on the forehead and sides of the head and neck, giving a streaked appearance; entire under surface white; under wing-coverts white, interior ones with dark shafts, those near the edge of wing with dark disks; axillars pure white; tail brown, the inner webs of the lateral rectrices near the base white; primaries black throughout. Bill horn-color; feet flesh-color, the outer toe a little darker. Length, about 480; wing, 330; outer rectrices, 102; central rectrices, 142.

"*Female.*—Similar to the male." (*Salvin.*)

"Lower parts white; top and sides of head white, spotted and streaked with blackish. Wing, 286 to 318; tail, 149 (graduated for about 46); culmen, 47; tarsus, 47; middle toe with claw, 33." (*Ridgway.*)

The only record of this species for the Philippine Islands is based on the specimen collected by Cuming.

Order LARIFORMES.

TERNS AND GULLS.

Nostrils pervious, the opening linear or oval; wings long, strong, and pointed; first primary longest; legs and feet moderate; hind toe small and elevated; anterior toes fully webbed. Plumage of the adult simple in color, being white, black, and pearl-gray, rarely brown, usually in large areas. Young gray or mottled, very different in color from the adult. Usually found in flocks and never far from water. Eggs two to four, highly colored; nests usually on the ground or on cliffs; young downy at birth and fed in the nest for some time.*

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* As the Bureau of Science collection contains very few specimens belonging to the order Lariformes and as these are winter specimens only, the greater part of the specific descriptions of Philippine gulls and terns are copied from Saunders's excellent work, in volume 25 of the Catalogue of Birds in the British Museum.

Family **LARIDÆ.**

Characters same as those given for the Order.

Subfamilies.

a^1. Tail more or less forked (except in *Anous*); bill slender; terminal portion of culmen straight or but slightly curved; angle of lower mandible not prominent .... **Sterninæ** (p. 86)
a^2. Tail even; bill stouter; terminal portion of culmen decidedly curved; angle of lower mandible distinct .... **Larinæ** (p. 95)

Subfamily STERNINÆ.

The members of this subfamily afford no very tangible characters to distinguish them from the gulls other than those already mentioned. However, the terns are, as a rule, of more slender form and more airy and graceful flight. The wings, bill, and tail are proportionately longer and the body smaller than these parts in the gulls.

Genera.

a^1. Tail more or less forked.
  b^1. Tail but little more than one-third of wing, its outer feathers broad and rounded .... **Hydrochelidon** (p. 86)
  b^2. Tail much more than one-third of wing, its outer feathers narrow and pointed. **Sterna** (p. 88)
a^2. Tail graduated; plumage sooty brown .... **Anous** (p. 94)

Genus HYDROCHELIDON Boie, 1822.

Bill short and slender; legs and feet small; webs between the toes deeply emarginate; wings long, when closed, exceeding the tail; tail short, nearly square.

Species.

a^1. Black or dark gray below (adults in summer).
  b^1. Upper tail-coverts and tail white; under wing-coverts black. **leucoptera** (p. 86)
  b^2. Upper tail-coverts and tail gray; under wing-coverts white.. **hybrida** (p. 87)
a^2. White below (adults in winter and young).
  b^1. Tail white .... **leucoptera** (p. 86)
  b^2. Tail gray.
    c^1. Rump gray like back .... **hybrida** (p. 87)
    c^2. Rump white (young) .... **leucoptera** (p. 86)

76. HYDROCHELIDON LEUCOPTERA (Meisner and Schinz.)

WHITE-WINGED BLACK TERN.

Sterna leucoptera MEISNER and SCHINZ, Vog. Schweiz (1815), 264.
Hydrochelidon leucoptera SAUNDERS, Cat Birds Brit. Mus. (1896), **25**, 6; SHARPE, Hand-List (1899), **1**, 133; OATES, Cat. Birds' Eggs (1901), **1**, 174; MCGREGOR and WORCESTER, Hand-List (1906), 20.

Mindanao (*Steere Exp., Bourns & Worcester*). Central and southern Europe to central Asia and China; Australia, New Zealand, Africa in winter.

"*Adult in breeding plumage.*—Head, neck, and upper back dark, glossy black; coverts on the carpal joint pure white; greater wing-coverts pearl-gray; secondaries darker, passing into slate-gray; primaries frosted with pearl-gray, which soon wears off the outer quills, leaving the webs sooty black, with a well-defined narrow whitish streak down the middle of the inner webs of the four outer primaries; shafts white; back and rump grayish black; upper tail-coverts and tail pure white; under parts deep black; vent white; flanks, under wing-coverts, and axillars black. Bill livid red; feet orange-red; webs of toes much indented. Length, 236; culmen, 28; wing, 208; tail, 79; tarsus, 19; middle toe with claw, 25.

"*Adult in autumn and winter plumage.*—In the latter part of July, when the molt begins (in Europe), the bird is curiously parti-colored, the new feathers of the head, neck, and under parts being white and those of the back gray (paler than in *Hydrochelidon nigra.*) Later, the under parts, including the under wing-coverts and axillars, become white, the crown and nape being merely mottled with black; but by the following April the black color has reappeared to a considerable extent, especially in the axillars.

"*Immature.*—In birds which are not mature, though capable of breeding, the black of the under parts has a brownish tinge and the tail-feathers are pearl-gray, especially toward the tips. In winter like the adult.

"*Young.*—Similar to the winter plumage of the somewhat immature bird, but much mottled with dark brown on the upper parts, and the tail-feathers slightly darker gray with a brownish tinge toward the tips; upper tail-coverts always white.

"*Nestling.*—Ruddy fawn-color, mottled with black above, unspotted pale cinnamon-brown below." (*Saunders.*)

"Observed and shot by us in Mindanao, where it was flying over the rice-fields." (*Bourns and Worcester MS.*)

77. HYDROCHELIDON HYBRIDA (Pallas).

WHISKERED TERN.

Sterna hybrida PALLAS, Zoogr. Rosso-Asiat. (1811), 2, 338.

Hydrochelidon hybrida SAUNDERS, Cat. Birds Brit. Mus. (1896), **25**, 10; BLANFORD, Fauna Brit. Ind. Bds. (1898), **4**, 307, fig. 70 (head); SHARPE, Hand-List (1899), **1**, 33; OATES, Cat. Birds' Eggs (1901), **1**, 175; MCGREGOR and WORCESTER, Hand-List (1906), 20.

Luzon (*Meyer, Murray, Whitehead, McGregor*); Mindanao (*Bourns & Worcester, Mearns*); Palawan (*Whitehead, Steere Exp.*); Negros (*Whitehead*). Southwestern, central, and southern Europe to China, Malay Archipelago, Australia, Africa.

"*Adult male in breeding plumage.*—Forehead, crown, and nape deep black; from the gape to the nape a conspicuous white streak; upper parts slate-gray, darker on the primaries, except when these are new and frosted; shafts white; inner webs of outer pairs of primaries white on the upper and greater part of the inner webs; upper tail-coverts gray; tail-feathers gray, with white outer webs to the outside pair; chin white or very pale gray; throat gray, darkening on the lower part: breast dark slate-gray, which deepens into black on abdomen and flanks; vent and under tail-coverts white; under wing-coverts white; axillars white with a faint tinge of gray. Bill blood-red; feet vermilion, drying to orange-color; webs deeply indented, but less so than in *H. leucoptera.* Length, 280; culmen, 35; wing, 235 to 241; tail, 96; tarsus, 23; middle toe with claw, 29.

"Indian birds, which are probably almost sedentary, are slightly smaller in size. Some of the birds resident in South Africa are of a distinctly darker hue both above and below than northern examples; Australian specimens, on the other hand, are inclined to be paler.

"*Adult female.*—Similar to the male, or a trifle paler in general tint.

"*Adult in winter plumage.*—Upper parts of a paler gray than in the breeding season; forehead white; crown and nape streaked and mottled with black; under parts entirely white; bill and feet reddish brown.

"*Young in first plumage.*—Crown and nape blackish brown, mantle mottled with brown and with warm cinnamon-brown edges to inner secondaries; tail slightly mottled and edged with ash-brown; the rest like the adult in winter. By December the brown markings are considerably diminished.

"*Nestling.*—Down at the base of bill black, forehead ruddy fawn-color; upper parts paler fawn, mottled and streaked with black; under parts white, except the throat, which is sooty black for a few days." (*Saunders.*)

"Common about the Pasig River and Laguna de Bay. Several flocks were observed in Mindanao feeding over the paddy-fields." (*Bourns and Worcester MS.*)

Genus STERNA Linnæus, 1758.

Bill much as in *Hydrochelidon* but somewhat longer; toes completely webbed; tail always distinctly forked; outer rectrices usually much longer than the others.

Species.

a^1. Crown black.
  b^1. Larger; wing, 240 mm. or more.
    c^1. Forehead black to base of culmen.
      d^1. Larger; tarsus yellow or red; bill red in summer.......... **hirundo** (p. 89)
      d^2. Smaller; tarsus blackish, bill black at all seasons.... **longipennis** (p. 89)
    c^2. Forehead white.
      d^1. Lores white .... **boreotis** (p. 90)
      d^2. Lores black.
        e^1. Wing, 265 mm.; mantle umber-brown........................ **anæstheta** (p. 91)
        e^2. Wing, 300 mm.; mantle deep black........................ **fuscata** (p. 92)
  b^2. Smaller; wing less than 200 mm.................................... **sinensis** (p. 92)
a^2. Crown white .... **melanauchen** (p. 93)

78. **STERNA HIRUNDO** Linnæus.

COMMON TERN.

Sterna hirundo LINNÆUS, Syst. Nat. ed. 10 (1758), **1**, 137.
Sterna fluviatilis SAUNDERS, Cat. Birds Brit. Mus. (1896), **25**, 54; SHARPE, Hand-List (1899), **1**, 135; OATES, Cat. Birds' Eggs (1901), **1**, 182; MCGREGOR and WORCESTER, Hand-List (1906), 20.

Calayan (*McGregor*). Countries on both sides of Atlantic Ocean, Indian and African coasts in winter, Brazilian coasts in winter.

"*Adult male in breeding plumage.*—Forehead, upper lores, crown, and nape black; mantle rather dark pearl-gray; secondaries narrowly margined with white; outer primary with a black outer web, and a broad streak (10 mm.) of very dark gray next the white shaft on inner web, rest of inner web white, except toward tip, where it is dark ash-gray; inner primaries paler gray, with white 'wedges' and dark gray margins to inner webs; rump whitish; tail-feathers white, with gray outer webs, those of the streamers darkest; chin and cheeks white; breast and belly pale, vinaceous-gray; under wing- and under tail-coverts white. Bill coral-red, the extreme tip horn-color; iris dark brown; tarsi and toes coral-red. Length, 362; culmen, 43; wing, 267; tail, 165; depth of fork, 82; tarsus, 22; middle toe with claw, 24.

"*Female.*—Similar to the male.

"*Adult in winter plumage.*—Like the above, but forehead and crown streaked and mottled with white; colors of bill and feet much duller from September onwards, under parts paler.

"*Immature.*—Like the above, but the forehead white; a dark gray band along upper wing-coverts; under parts distinctly white.

"*Young* (in August).—Mantle barred and mottled with ash-brown; outer webs of tail-feathers dark gray; band on wing-coverts more extended than in the immature bird; otherwise similar. In fledglings the upper parts are much marked with warm buff.

"Up to about the end of September the colors of bill and feet become lighter, but afterwards they rapidly go back and become more or less horn-colored.

"*Nestling.*—Forehead and throat brown; upper parts stone-buff, spotted and streaked with black; under parts white; feet yellow." (*Saunders.*)

79. **STERNA LONGIPENNIS** Nordmann.

NORDMANN'S TERN.

Sterna longipennis NORDMANN, in Erman's Reise (1835), 17; SAUNDERS, Cat. Birds Brit. Mus. (1896), **25**, 67; BLANFORD, Fauna Brit. Ind. Bds. (1898), **4**, 319; SHARPE, Hand-List (1899), **1**, 135; OATES, Cat. Birds' Eggs (1901), **1**, 185, pl. 14, fig. 4.

Basilan Straits (*Mearns*). Eastern Siberia, Kamtchatka, and Japan; in winter China to New Guinea.

"*Coloration.*—Similar to that of *S. fluviatilis* [= *hirundo*], except that the bill is always black and the feet are blackish. Adults are darker in color, both above and below, but the difference is not great. All the measurements appear identical, or nearly so, except those of the bill, which is altogether smaller, and measures about 45 mm. from the gape." (*Blanford.*)

"*Adult in winter.*—Forehead flecked with white otherwise similar.

"*Immature.*—Like that of *fluviatilis* [= *hirundo*] from which it can hardly be distinguished except by the color of the bill and feet and the somewhat smaller size and more delicate shape of the latter." (*Saunders.*)

80. **STERNA BOREOTIS** (Bangs).

NORTHERN BERGIUS TERN.

Sterna bergii SAUNDERS, Cat. Birds Brit. Mus. (1896), **25**, 89 (part); SHARPE, Hand-List (1899), **1**, 136 (part).
Sterna bergii boreotis BANGS, Bull. Mus. Comp. Zool. (1901), **36**, 256.
Sterna boreotis MCGREGOR and WORCESTER, Hand-List (1906), 20.

Ga-bi-o'-ta, general name for gulls and terns.

Agutaya (*McGregor*); Balabac (*Steere*); Bantayan (*McGregor*); Bohol (*Everett, McGregor*); Calamianes (*Bourns & Worcester*); Caluya (*Porter*); Cebu (*Bourns & Worcester, McGregor*); Cuyo (*McGregor*); Guimaras (*Bourns & Worcester*); Leyte (*Everett*); Luzon (*Bourns & Worcester*); Masbate (*Bourns & Worcester*); Mindanao (*Murray, Koch & Schadenberg, Steere Exp., Bourns & Worcester*); Mindoro (*Porter*); Negros (*Bourns & Worcester, Keay*); Palawan (*Whitehead, Platen, Bourns & Worcester, White*); Panay (*Bourns & Worcester*); Pata (*Mearns*); Romblon (*Bourns & Worcester, McGregor*); Samar (*Bourns & Worcester*); Sibuyan (*Bourns & Worcester*); Siquijor (*Bourns & Worcester, Celestino*); Sulu (*Bourns & Worcester*); Tablas (*Bourns & Worcester*); Tawi Tawi (*Bourns & Worcester*). Liu Kiu Islands and Northern China Sea.

"*Adult male in full breeding plumage* (*type*).—Forehead, cheeks, lores, ear-coverts, neck all round, and whole under parts, including lining of wing and bend of wing, pure white: crown and long occipital crest glossy black; mantle, wings, rump, upper tail-coverts, and upper surface of middle rectrices dark smoke-gray, darkest on wings and middle of back, where the color is almost mouse-gray; primary quills white; first primary with outer web, a band along quill on inner web and tip blackish, with a silvery suffusion which is most marked toward center of feather; broad outer margin of inner web, below the black tip, white; second primary similar but black tip deeper in color and extending a short distance down outer margin of inner web, thus inclosing the white of inner web for a short distance; third, fourth, and fifth primaries like second, but black tip gradually growing deeper in color; outer rectrices above pale smoke-gray at tips and along shafts, pale grayish white toward base; second and third rectrices darker on the outer webs and at tip and whitish toward base of inner webs. Bill in dried specimen, dull yellow clouded with olive toward base; feet and tarsi blackish. Wing, 344; tail, 178; tarsus, 28; culmen, 62." (*Bangs.*)

"Very common throughout the group, especially abundant about the native fish-pens." (*Bourns and Worcester MS.*)

This is much the largest tern found in the Philippines. Rather local in its distribution but usually found not far from fish-corrals or where schools of small fishes appear near the surface of the water.

Philippine records of this species are usually recorded under *Sterna bergii*, but the specimens probably belong to the variety *S. bergii boreotis*. The question can not be cleared up at present.

81. STERNA ANÆSTHETA Scopoli.

PANAYAN TERN.

Sterna anæstheta Scopoli, Del. Flor. et Faun. Insubr. (1786), 1, 92; Saunders, Cat. Birds Brit. Mus. (1896), 25, 101; Sharpe, Hand-List (1899), 1, 136; Oates, Cat Birds' Eggs (1901), 1, 190; McGregor and Worcester, Hand-List (1906), 20. Worcester, Phil. Jour. Sci. (1907), 2, sec. A, 275, pl. 1 (nesting place).

Didicas Rocks (*Worcester*); Panay (*Sonnerat*). African and Indian seas to China, Japan, Moluccas, northern Australian, Pacific Islands; Gulf of Mexico, Western Indies.

"*Adult in breeding plumage.*—Loral stripe black; upper forehead, crown, and nape black; shoulders slate-gray, passing into dark grayish brown on mantle; no visible white on secondaries; primaries umber-brown, shafts black, the 'wedges' on inner webs very narrow and not sharply defined; rump and principal tail-feathers grayish brown like the mantle, but the streamers white on outer and upper portions of inner webs, and the next pair of rectrices whitish at their bases; abdomen and breast grayish white; under wing-coverts and throat pure white. Bill, tarsi, and toes black, the inner webs of the latter considerably excised. Length, 355 to 380; culmen, 45; wing, 262; tail, 190; depth of fork, 102; tarsus, 20; middle toe with claw, 30. The sexes are alike in plumage.

"*Adult in winter plumage.*—Similar to the above, but the lores and crown mottled with white for a short time.

"*Immature.*—Generally similar, but with more white on the head; whitish tips to the feathers of the back, which, when fresh, are somewhat gray; a dark line along upper wing-coverts, and less white on outer rectrices. Full plumage is not attained until the bird is at least two years old.

"*Young.*—Head streaked and mottled with brownish black; feathers of upper parts dark brown with rufous tips, which subsequently become paler, approaching white, and finally wear away; under parts grayish white. Bill and toes brownish." (*Saunders.*)

82. **STERNA FUSCATA** Linnæus.

SOOTY TERN.

Sterna fuscata LINNÆUS, Syst. Nat. ed. 12 (1766), **1**, 228.*
Sterna fuliginosa SAUNDERS, Cat. Birds Brit. Mus. (1896), **25**, 106; SHARPE, Hand-List (1899), **1**, 136; OATES, Cat. Birds' Eggs (1901), **1**, 191; MCGREGOR and WORCESTER, Hand-List (1906), 21.

Siquijor (*Bourns & Worcester*). Tropical and juxtatropical seas of the world.

"*Adult in breeding plumage.*—Similar to *S. anæstheta;* but larger, white frontal-band and superciliary stripe broader, the latter oblique and not reaching beyond eye, from which it is separated by a narrow continuation of the black loral stripe; upper surface sooty black, the wedges on inner webs of primaries a trifle paler than the rest; streamers dull white on the outer webs, remaining tail-feathers sooty black; under tail-coverts, abdomen, and flanks grayish white; breast and throat white. Bill and feet black with a slightly reddish tinge, the web between middle and inner toe nearly full, and far less excised than in *S. anæstheta.* Length, about 430; culmen, 53, wing, 298; tail, about 190; depth of fork, 102; tarsus, 23; middle toe with claw, 28.

"*Adult in winter.*—Like the above, with white flecks on the lores and crown.

"*Immature.*—Brownish black above, darker on the upper wing-coverts; outer tail-feathers nearly as sooty black as the rest of the rectrices, except toward the tips; tarsi and toes reddish brown.

"*Nestling and young.*—The chick when about three days old is streaked with grayish brown and dull white on the upper surface, darkest on the forehead, and chiefly stone-white below; when half fledged, the feathers of the mantle are blackish, with broad white tips, which gradually wear down. When the bird is fully fledged these white tips are much narrower, the feathers of the upper parts are sooty brown, and the under parts are also somewhat paler brown, becoming lighter toward the vent. (In *S. anæstheta* the under parts are whitish). Bill and feet reddish brown." (*Saunders.*)

83. **STERNA SINENSIS** Gmelin.

WHITE-SHAFTED TERN.

Sterna sinensis GMELIN, Syst. Nat. (1788), **1**, pt. 2, 608. SAUNDERS, Cat. Birds Brit. Mus. (1896), **25**, 113; SHARPE, Hand-List (1899), **1**, 136; OATES, Cat. Birds' Eggs (1901), **1**, 192; MCGREGOR and WORCESTER, Hand-List (1906), 21.

Luzon (*Whitehead*); Mindanao (*Steere Exp.*); Mindoro (*Bourns & Worcester*); Palawan (*Whitehead*). Chinese and Indian seas to Australia.

"*Adult male in breeding plumage.*—Lores black from base of bill to eye; forehead as far as a little beyond the top of eye white; crown and nape black; mandible pearl-gray; secondaries bordered with grayish white; shafts of primaries pure white in the outer, and pale gray in the upper ones; outer web of the outer primary and a broad line next the shaft on its inner web dark gray; on the succeeding primaries paler gray; upper portions and edges of inner webs white; rump pearl-gray; tail and under parts white. Bill gamboge-yellow, tipped with black; tarsi and feet orange-yellow. Length, 280 when the streamers are fully developed; culmen, 35; wing, 188; tail, 145; depth of fork, 86; tarsus, 16; middle toe with claw, 20.

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* Cf. Bureau, *Bull. Soc. Sci. Nat. Ouest France* (1904), **14**, 227–256.

"*Adult female.*—Slightly smaller than the male and with less developed tail-streamers.

"*Adult in autumn.*—Similar, with more white on the forehead, and shorter tail-streamers; primaries darker on their terminal portions, owing to the disappearance of the frosting, until the new quills appear.

"*Immature.*—Like the above, but dull white on crown and the front of the lores; primaries still darker, the outer shafts always white, the other shafts dusky; upper wing-coverts dark gray; tail-feathers grayish, and the streamers not much prolonged; bill dark brown, tarsi and toes ochraceous.

"*Young.*—Forehead buffish white, crown with black streaks which become confluent on nape; upper parts mottled and barred with buffish brown on a dull gray ground. Bill horn-color; feet ocher-yellow. When the bird is barely fledged the buff-color predominates on the upper surface." (*Saunders.*)

"Found by us in great abundance near the center of Mindoro, where it was flying about over the dried beds of streams and alighting among the pebbles, its color assimilating so closely with that of the sand and small stones that it was well nigh impossible to see it on the ground." (*Bourns and Worcester MS.*)

84. **STERNA MELANAUCHEN** Temminck.

BLACK-NAPED TERN.

Sterna melanauchen Temminck, Pl. Col. (1827), pl. 427; Saunders, Cat. Birds Brit. Mus. (1896), **25**, 126; Sharpe, Hand-List (1899), **1**, 137; Oates, Cat. Birds' Eggs (1901), **1**, 195; McGregor and Worcester, Hand-List (1906), 21.

Palawan (*Platen*); Cresta de Gallo (*McGregor*). Tenasserim, Malay Peninsula, Nicobars, Andamans, northern Mascarene Islands, Pacific Islands, Liu Kiu Islands, northern Australia.

"*Adult in breeding plumage.*—Forehead and crown pure white; in front of the eye a black triangular patch, the apex of which does not reach base of bill; behind the eye on each side and inclosing the nape a band of black, broad and prolonged in the center; neck white; mantle and rump delicate pearl-gray; shafts of all primaries white; outer primary with the outer web blackish, and the streak next shaft on inner web pale gray; the succeeding primaries palest gray next the shafts on the outer and the inner webs, the inner margins of all being pure white; tail long and forked, the middle tail-feathers pale pearl-gray, the rest white; under parts glossy white, with a beautiful roseate tint. Bill black; tarsi and toes dark brown to black. Length, 343; culmen, 41; wing, 216; tail, 152; depth of fork, 76; tarsus, 18; foot with middle toe, 23. The male appears to have somewhat longer streamers than the female; otherwise the sexes are alike externally.

"*Adult in winter plumage.*—Differs only in having less black in front of the eye and on the nape.

"*Immature.*—Similar to the above, but there is a brownish tinge to the black on the nape; wing-coverts ash-gray; a dark line along the carpal joint; webs of the four outer primaries on both sides of the white shafts dark ash-gray (outermost black), outer webs of the tail-streamers also ash-colored.

"*Young.*—Forehead and crown buffish white, with black streaks which become confluent on nape; feathers of mantle and tail gray, barred with ash-brown and tipped with buff; primaries with a good deal of gray, which throws into strong relief their broad, white, inner margins. Bill ocher-yellow, horn-colored near the tip; toes yellowish brown.

"*Nestling.*—Above pale buff, spotted and streaked with black and umber-brown; beneath dull drab." (*Saunders.*)

Genus ANOUS Stephens, 1826.

This genus is distinguished by its brown plumage and graduated tail-feathers.

85. **ANOUS STOLIDUS** (Linnæus).

NODDY TERN.

Sterna stolida LINNÆUS, Syst. Nat. ed. 10 (1758), **1**, 137.

Anous stolidus SAUNDERS, Cat. Birds Brit. Mus. (1896), **25**, 136; BLANFORD, Fauna Brit. Ind. Bds. (1898), **4**, 325, fig. 73; SHARPE, Hand-List (1899), **1**, 137; OATES, Cat. Birds' Eggs (1901), **1**, 197; MCGREGOR and WORCESTER, Hand-List (1906), 21.

Cagayan Sulu (*McGregor*); Palawan (*Whitehead, Platen, McGregor*). Tropical and juxtatropical seas of the world.

"*Adult male in breeding plumage.*—Forehead nearly white at base of bill, passing on the crown into lavender-gray, which deepens on neck into lead-color; lores and orbital region black, with a faint whitish superciliary streak; upper parts chiefly dark brown; primaries, tail-feathers, and their shafts nearly black; under parts dark brown on abdomen and breast, passing into deep lead-color on the throat. Bill blackish; tarsi and toes reddish brown, fully webbed, webs ochraceous. Length, about 406; culmen, 53; wing, 260 to 280; tail, 152 to 178, the fourth feather from the outside the longest; tarsus, 25; middle toe with claw, 39.

"*Adult female.*—Very similar but, as a rule, somewhat browner on the shoulders and with less lead-color on the throat, slightly smaller, and with a weaker bill.

"*Immature.*—Similar, but with even less lead-color, and a dark line along the upper wing-coverts.

"*Young.*—Browner generally and paler; forehead and crown grayish brown; below the forehead a narrow white superciliary line conspicuous by contrast against the blackish lores.

"*Fledgling* (Ascension I.).—Umber-brown above and below; the whitish streak above the lores very marked, and continuous round base of bill; a slight grayish tint on forehead.

"*Downy nestling.*—One about five days old (British Honduras: May 12, 1862) has the forehead and crown dull white, lores blackish, upper surface mouse-brown, nape and throat darkest, lower parts paler. Another, only just hatched, is nearly uniform, sooty brown." (*Saunders.*)

Subfamily LARINÆ.

Of larger size than the terns; body and bill heavier; tail square or nearly so.

Genus LARUS Linnæus, 1758.

Characters same as those given for the Subfamily.

Species.

a^1. Smaller; length, 400 mm.; wing, 300.. **ridibundus** (p. 95)
a^2. Larger; length, 600 mm.; wing, 450.. **vegæ** (p. 97)

86. LARUS RIDIBUNDUS Linnæus.

LAUGHING GULL.

Larus ridibundus LINNÆUS, Syst. Nat. ed. 12 (1766), **1**, 225; SAUNDERS, Cat. Birds Brit. Mus. (1896), **25**, 207; SHARPE, Hand-List (1899), **1**, 140; OATES, Cat. Birds' Eggs (1901), **1**, 208; MCGREGOR and WORCESTER, Hand-List (1906), 21.

Luzon (*Jagor, Murray, McGregor*); Mindanao (*Murray, Goodfellow*). Europe, northern Asia, Africa, and Indian Ocean; China to Malay Archipelago in winter.

"*Adult male in breeding plumage.*—Hood coffee-brown; gray mantle, white tail, and white under surface tinged with evanescent roseate; pattern of outer primaries chiefly white, with black tips, and black margins to inner webs; shafts of three outer quills white; outermost quill white, with a narrow black line along the greater part of outer web (touching the shaft in all except very old birds), a black tip, and a blackish edge to the inner margin; second quill similar, but with merely a short hairline of black on the outer web; third quill with a trifle more black running upward from the black tip along the outer web; fourth quill similar, but with a gray center to inner web; fifth quill white on both webs, and with a minute white tip; sixth similar, but the tip gray and broader, so that the black becomes a subterminal bar; seventh similar, but with less and fainter black; upper primaries gray; secondaries paler gray, without conspicuous margins. Bill, tarsi, and toes lake-red; iris hazel. Length, 394 to 406; culmen, 46; wing, 298 to 305; tail, 127; tarsus, 43; middle toe with claw, 39.

"The *female* is undoubtedly smaller as a rule, though there are exceptions.

"*Adult in winter.*—Similar, but without a hood; merely a little grayish on the occiput, and blackish on the auriculars. In vigorous birds the indications of a hood reappear in autumn, soon after the completion of the molt, which is in August; but cold weather, combined with a scarcity of nutritive food, arrests the development, and it is not usual to see birds with fully complete hoods till February, though there are many exceptions. A female (by dissection) obtained in the shore-nets at Wells, Norfolk, on November 10, has the under parts, and even the shafts and webs of the primaries, suffused with a beautiful salmon-pink, but this also must be considered unusual.

"*Nestling.*—Buffish to brown, darkest on the upper parts, spotted and streaked with umber and black on the back, head, and throat.

"*Young.*—Forehead white, rest of head chiefly grayish brown; upper surface warmer brown, with gray lower wing-coverts; secondaries with blackish centers and white borders; the three outer primaries black on outer webs and at the tips and margins of inner webs, but the centers white, except the outermost, in which there is for a time a dark line inside the shaft; in the succeeding primaries the dark color increases ascendingly on the inner webs, while from the fifth the outer webs are pale gray to brownish, with a little white at tips; tail-feathers white, with a band of blackish brown; under surface dull white. Bill dull yellow, passing into black at the angles; tarsi and toes dull reddish yellow. The brown color is soon lost on the back, which has become gray by December.

"*Immature.*—Like the adult, with a few brown markings left on the upper wing-coverts, and more black on the outer webs of the primaries. More or less of a brown hood is assumed when the bird is barely a year old, and the band on the tail is lost by the following autumn, when the new primaries appear, with, as has been said, a larger proportion of black than in the adult; in fact the duration of the immature phase is very short. The bird does not breed until the following, or second spring.

"Occasionally the black from the margins of the inner webs of the three outer quills runs in and reaches the shafts, much encroaching upon the usual white centers, though not to the same extent on both wings of the same bird. This is noticeable in two examples obtained at Dinapur in December." (*Saunders.*)

This small gull is often abundant about Manila Bay but does not remain throughout the year.

87. LARUS VEGÆ (Palmen).

VEGA GULL.

Larus argentatus var. *vegæ* PALMEN, Vega Exped., Vetensk (1887), **5**, 370.
Larus vegæ SAUNDERS, Cat. Birds Brit. Mus. (1896), **25**, 269; SHARPE, Hand-List (1899), **1**, 141; HARTLAUB, Abhandl. Natur. Ver. Bremen (1899), **16**, heft. 2, 270; MCGREGOR and WORCESTER, Hand-List (1906), 21.

Luzon (*Schmacker*). Bering Sea and Arctic Siberia; Chinese coasts, Japan, Formosa, and Bonin Islands in winter.

Adult male in breeding plumage.—Head, neck, tail, and under parts white; mantle and wing surface french-gray, with broad white tips to the scapulars and secondaries, making a conspicuous alar bar; all the primaries tipped with white; outermost quill blackish from the base downward (save a narrow gray wedge on inner web), with a white tip 63 mm. in length in mature birds, and a narrow, black bar which divides the white into tip and "mirror" in the majority; second quill blackish for about 10 mm. on both sides of shaft, with a black subterminal bar, a white mirror, and, on the inner web, a broad, gray wedge which sometimes breaks through and joins the mirror; third quill grayish basally, blackish on the lower part of outer web and on the subterminal bar, gray on the inner web, passing into white at the apex of the wedge; fourth similar but gray on both webs above the bar; fifth quill similar but bar narrower; sixth gray, without a bar in mature birds and with a narrow bar in others; the remaining quills gray with white tips. In less mature birds there is no mirror on the second quill. Ring around eye and gape bright orange-red; tarsi and toes pale flesh-color. Length, about 610; wing, 457; tail, 197; culmen, 74; tarsus, 70; middle toe with claw, 66.

The *female* is smaller and less robust.

Adult in winter.—Similar but head and neck streaked with ash-brown

Immature and young.—In the first autumn the upper parts are streaked and mottled with brown and grayish buff; quills dark umber, with paler inner webs and whitish tips to most; rectrices similar, but more or less mottled with whitish at bases of two or three outer pairs; feathers of upper tail-coverts brown, with buffish white tips; under parts nearly uniform brown at first, but afterwards brownish gray, mottled; bill blackish, paler at base of lower mandible. The second autumn the head is nearly white, streaked with grayish brown; the upper parts are barred with brown on a grayish ground, though no pure gray feathers have yet made their appearance on mantle; quills paler; tail more mottled with white at the bases of all the feathers. In the third autumn the feathers of the mantle are chiefly gray, with some brownish streaks down the shafts; a faint subapical spot begins to show on the outermost primary; the tail-coverts are partly white, and the dark portion of the rectrices is much broken up; under parts nearly white. In the fourth autumn the subapical patch on first primary is larger, and the quills from the fifth upward are banded with black and tipped with white; tail-feathers white, slightly vermiculated with brown; bill greenish yellow basally, reddish black at the angle. At the molt of the fifth autumn all brown markings are lost, the primaries have white tips, black bars, and gray wedges, though the proportion of dark coloring in quills is greater than it is in older birds. (*Compiled from Saunders.*)

The only notice of the occurrence of the Vega gull in the Philippine Islands, appears to be the record by Hartlaub.

Order **CHARADRIIFORMES.**

SHORE-BIRDS AND WADERS.

Wings long, flat, and pointed, with narrow, rapidly graduated primaries; inner secondaries long; tail usually quite short; rarely forked (*Glareola*) or greatly elongated (*Parridæ*); legs generally long and slender, sometimes extremely so; toes short except in *Parridæ,* either semipalmate or cleft to the base; lobate in *Phalaropodinæ;* bill slender, compressed, and covered with soft skin, rarely hard throughout (*Arenaria*). Members of this order live on the ground in open places, usually near water and many of the species assemble in flocks during the winter months. Eggs three or four, highly colored and much spotted, usually pyriform. The nest, with rare exceptions, is a slight hollow in the ground. The young are downy and able to run within a few hours after leaving the egg. This order includes the sandpipers, plovers, snipes, curlews, and their allies.*

Suborders.

a^1. Tail nearly square, never forked; toes and claws not greatly lengthened.
  b^1. Smaller, wing less than 230 mm.; bill small and short or greatly lengthened but never heavy .... **Charadrii** (p. 99)
  b^2. Larger; wing more than 250 mm.; bill moderate in length but powerful; tarsus covered with hexagonal scales.......... **Œdicnemi** (p. 154)
a^2. Tail forked, or else the claws very long.
  b^1. Tail forked; gape deeply cleft; claws normal in length.......... **Cursorii** (p. 152)
  b^2. Tail not forked, but with two or more lengthened feathers; gape normal; claws extremely long and slender; a sharp spur at bend of wing. **Parræ** (p. 150)

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* While I have examined specimens of nearly all the species in this order which are known to occur in the Philippine Islands the material available to me is unsatisfactory as a basis for specific descriptions. This is due to the fact that most of the species under consideration are migrants and can be taken in the Philippines in non-breeding plumage only. Rather than present descriptions based upon inadequate material I have included here numerous quotations from Sharpe's monograph of the Limicolæ (Catalogue of Birds in the British Museum, volume 24) and from other standard works.

Suborder CHARADRII.

Family **CHARADRIIDÆ.**

Bill slender, in some very long, straight, occasionally gently curved; tail short and nearly square; legs moderately long to very long; plumage (except in *Rostratula*) white, gray, and brown, occasionally black and reddish. This family includes all the stilts, curlews, godwits, snipes, sandpipers, and plovers.

Subfamilies.

*a*¹. Toes not laterally scalloped; no serrated edge on back of tarsus.
  *b*¹. Tarsus more than twice as long as middle toe with claw; naked portion of thigh much longer than middle toe with claw...... **Himantopodinæ** (p. 113)
  *b*². Tarsus less than twice as long as middle toe with claw; naked portion of thigh much shorter than middle toe with claw.
    *c*¹. Culmen with a decided dertrum or arched swelling at tip; tarsus reticulate behind.
      *d*¹. A small fleshy wattle in front of eye: front of tarsus covered with large transverse scales .... **Lobivanellinæ** (p. 101)
      *d*². No eye wattle present; tarsus covered with small hexagonal scales. **Charadriinæ** (p. 102)
    *c*². Culmen without a dertrum at tip.
      *d*¹. Tarsus with transverse plates in front and hexagonal scales behind; bill short, less than head; culmen nearly straight......... **Arenariinæ** (p. 99)
      *d*². Tarsus with transverse plates both before and behind (except *Numenius* which has a long decurved bill); bill usually much longer than head, either straight or curved, the tip usually soft.
        *e*¹. Toes webbed at base.. **Totaninæ** (p. 114)
        *e*². Toes cleft to the base.. **Scolopacinæ** (p. 132)
*a*². Toes with lateral lobes; tarsus with the posterior edge serrated. **Phalaropodinæ** (p. 149)

Subfamily ARENARIINÆ.

Genus ARENARIA Brisson, 1760.

Bill pointed, culmen straight and flattened for basal half; nostril linear, situated in a groove which extends half the length of bill; wing long and pointed; first primary decidedly longest; tarsus short with transverse plates in front and hexagonal scales behind; toes without webs; hind toe present.

88. **ARENARIA INTERPRES** (Linnæus).

TURNSTONE.

Tringa interpres LINNÆUS, Syst. Nat. ed. 10 (1758), 1, 148.
Arenaria interpres SHARPE, Cat. Birds Brit. Mus. (1896), 24, 92; Hand-List (1899), 1, 146; OATES, Cat. Birds' Eggs (1902). 2, 3; MCGREGOR and WORCESTER, Hand-List (1906), 22.
Strepsilas interpres BLANFORD, Fauna Brit. Ind. Bds. (1898). 4, 223, fig. 50 (head).

Bantayan (*McGregor*); Bohol (*Everett*); Cagayancillo (*McGregor*); Cagayan Sulu (*Guillemard*); Cebu (*McGregor*); Lubang (*McGregor*); Luzon (*White-

head) : Masbate (*Bourns & Worcester*) ; Mindanao (*Steere Exp.*) ; Negros (*Steere Exp.*) ; Palawan (*Whitehead, Platen, Everett*) ; Siquijor (*Bourns & Worcester*). Cosmopolitan, breeding in high northern latitudes.

"*Adult male in breeding plumage.*—Above black, mixed with chestnut or partly chestnut feathers on center of mantle; scapulars for the most part chestnut, but outer ones black at the ends or irregularly marked with black; accessory scapular plumes white; back and rump pure white; upper tail-coverts black, longer ones pure white; lesser wing-coverts blackish; innermost rather broadly edged with white, as also those near edge of wing; median coverts for the most part chestnut, slightly mottled with black; greater coverts blackish, narrowly margined and broadly tipped with white; alula and primary-coverts black, innermost of the latter with white tips; quills black with white shafts, and white bases to the inner primaries; secondaries for the most part white, blackish toward the ends of the feathers,, these black markings decreasing gradually toward the inner secondaries, some of which are pure white, the innermost secondaries black, mottled with chestnut, like the scapulars; tail-feathers black with white bases, all but the center tail-feathers tipped with white, the black diminishing in size and forming a band toward the outer feathers, which are almost white; crown and hind neck white, the former streaked, the latter mottled with black; base of forehead and a narrow frontal line black, followed by a band of white, which unites with a broad eyebrow and is extended over ear-coverts; lores and fore part of cheeks white; feathers round eye and eyelid white, separated from the white loral patch by a narrow line of black, which unites the frontal band to a square, black patch beneath the eye, the latter joined to a malar line of black, which is connected with the sides of the neck and with the fore neck and sides of breast, all these parts being black, but nearly divided by a semi-lunar band of white, which reaches from the sides of the neck almost to the breast; throat and under surface of body from the center of chest downward, white; under wing-coverts and axillars pure white; quills below ashy whitish along the inner web. 'Bill black; feet deep orange-red, claws black; iris hazel.' (*Audubon.*) Length, 200; culmen, 23; wing, 157; tail, 58; tarsus, 24; middle toe with claw, 28.

"*Adult female in breeding plumage.*—Much duller than the male, and having the same pattern of black and white about the face, but never developing the same amount of chestnut about the back, the head and hind neck being brown, mottled with blackish centers to the feathers. Length, 216; culmen, 23; wing, 160; tail, 62; tarsus, 24; middle toe with claw, 25.

"*Young.*—Above dusky brown, all the feathers edged with sandy buff or rufous; wings and tail as in the adult; crown dark brown, streaked with sandy buff, the margins of the feathers being of this color; tail-feathers white, with a broad, subterminal band of black, decreasing in extent toward the outermost feathers, all the feathers tipped with sandy buff; throat and under surface white; lower throat, fore neck, sides of neck, and sides of breast, mottled with dusky blackish centers to the feathers, marking the black pattern of the adults, even the semi-lunar neck-band of the adults being indicated by a broad, crescentic band of sandy buff in the young.

"*Winter plumage of the adult.*—Above nearly uniform dusky brown, but not showing the tawny rufous margins to feathers of upper surface, the edges being ashy brown; head uniform brown like the back; hind neck and sides of neck ashy, mottled with dusky centers to the feathers; sides of face brown, with more or less white on ear-coverts; black markings on cheeks and throat as in the breeding bird, but the white semilunar band on the sides of the neck replaced by a patch of light brown.

"The difference between the *winter plumage of the adult* and *the first full plumage of the young birds* consists in the sandy buff margins to the feathers of the upper surface, which are very distinct in the latter at first. Afterwards they become abraded, and then there is scarcely any distinguishing mark between the winter plumages of the adult and young. In the spring the red plumage is very rapidly acquired, and I believe that it is gained quite as much by the change in the pattern of the feathers as by a direct molt." (*Sharpe.*)

"Often seen in small flocks during the winter months." (*Bourns and Worcester MS.*)

Not uncommon on tide-flats in the winter months; it is easily recognized by its bright red legs.

Subfamily LOBIVANELLINÆ.

Genus MICROSARCOPS Sharpe, 1896.

A hard round knob at bend of wing; a small fleshy wattle on each side of head at base of bill; bill plover-like with a decided swelling at the tip; nostril linear in a groove; wing pointed, first and second primaries equal and largest; tarsus long, covered with large hexagonal scales which appear as transverse plates in front; front toes webbed at base; hind toe small.

89. MICROSARCOPS CINEREUS (Blyth).

GRAY-HEADED LAPWING.

Pluvianus cinerea Blyth, Jour. As. Soc. Bengal (1842), **11**, 587.

Microsarcops cinereus Sharpe, Cat. Birds Brit. Mus. (1896), **24**, 133; Hand-List (1899), **1**, 149; Oates, Cat. Birds' Eggs (1902), **2**, 9; McGregor, Phil. Jour. Sci. (1907), **2**, sec. A, 295.

Luzon (*Guerrero*). Korea and southern Japanese islands to Mongolia and northern China; southern China, Indo-Burmese countries, and north-eastern Bengal in winter.

"*Adult male.*—Above light brown, with a slight bronzy gloss; rump, upper tail-coverts, and base of tail white; terminal third of tail black, forming a broad band, tips white with a slight subterminal shade of brown, the black band vanishing toward the outer tail-feather, which is entirely white; wing-coverts brown like the back, but a little paler; median coverts with narrow white tips, except the outer ones, which are pure white; greater coverts nearly entirely white, with brown at the extreme base, increasing in extent on the inner ones; alula dark brown; primary-coverts and quills black; secondaries pure white; outer ones dusky near the ends, inner ones externally light brown, and innermost brown like the back; crown, nape, and hind neck, as well as side of face and neck, throat, fore neck, and chest light pearly gray, with a narrow black band across the upper breast; chin rather paler gray; remainder of under surface including under wing-coverts and axillars, pure white. 'Basal two-thirds of bill deep yellow, terminal third black; feet dull yellow, claws black; edges of eyelids and lappets deep yellow.' (*Oates.*) Length, 355; culmen, 35; wing, 239; tail, 102; tarsus, 67.

"*Adult female.*—Similar to the male in plumage. Length, 368; culmen, 35; wing, 239; tail, 107; tarsus, 68.

"*Adult in winter.*—Differs from the summer plumage in having the gray of head and throat washed with brown, especially on the chest; the black band obscured by ashy or whitish tips to the feathers." (*Sharpe.*)

Young male in winter.—Upper parts brown with a slight gloss, the feathers with dusky shafts; forehead and neck a trifle lighter and grayer; upper tail-coverts and tail white, rectrices with a subterminal, blackish band which is widest on central pair and absent from outermost pair; chin whitish; throat, and sides of head and neck, light brown with whitish streaks; breast brown, rest of under parts white; wing-coverts brown like the back but a little paler, median coverts with narrow white tips, except the outer ones which are pure white; greater coverts nearly entirely white, with brown at extreme base, increasing in extent on inner ones; alula dark brown; primary-coverts and quills black; secondaries white, the inner ones externally light brown and the innermost brown like the back.

This lapwing resembles a large plover, but is distinguished by having a small hind toe, a short and blunt wing-spur, and a small, fleshy wattle or lappet between the eye and the base of bill. The only Philippine specimen known was taken near Manila in January, 1906.

Subfamily CHARADRIINÆ.

Bill moderate, not longer than head, culmen flat and straight from base to the terminal swollen dertrum; first primary slightly the longest; tarsus covered on all sides with small hexagonal scales; toes webbed at base; hind toe minute or absent.

Genera.

a^1. Larger; wing more than 165 mm.; upper parts much spotted.
  b^1. A minute hind toe; axillars sooty black........................... **Squatarola** (p. 103)
  b^2. No hind toe; axillars gray or white.. **Charadrius** (p. 104)
a^2. Smaller; wing less than 165 mm.; upper parts nearly uniform gray or brown.
  b^1. Larger; wing, 140 to 165 mm.; bill stouter.................. **Ochthodromus** (p. 105)
  b^2. Smaller; wing, 100 to 115 mm.; bill more slender.............. **Ægialitis** (p. 109)

Genus SQUATAROLA Leach, 1816.

This genus is similar to *Charadrius* but differs in having a minute hind toe; the character is scarcely of generic value.

90. SQUATAROLA SQUATAROLA (Linnæus).

GRAY PLOVER.

Tringa squatarola LINNÆUS, Syst. Nat. ed. 10 (1758), 1, 149.

Squatarola helvetica SHARPE, Cat. Birds Brit. Mus. (1896), **24**, 182; Hand-List (1899), **1**, 152; OATES, Cat. Birds' Eggs (1902), **2**, 17; McGREGOR and WORCESTER, Hand-List (1906), 22.

Bantayan (*McGregor*); Bohol (*McGregor*); Cebu (*McGregor*); Cuyo (*Meyer*); Luzon (*Sanches*); Mindanao (*Everett*); Negros (*Layard*); Palawan (*Whitehead*); Siquijor (*Steere Exp. Bourns & Worcester, Celestino*). Subarctic regions, south in winter to Australia, Cape of Good Hope, and South America.

"*Adult male in breeding plumage.*—Above mottled with bars of black and ashy white, the feathers being black, notched with white and broadly tipped with the latter; scapulars and wing-coverts like back, the greater series edged externally with white, inner ones distinctly notched with white; alula and primary-coverts black, the former slightly, the latter more plainly, tipped with white; quills black, the shaft white about the middle; first two primaries white for the greater portion of the inner web, decreasing in extent on the succeeding quills, which also have the median portion of the shaft white, but after the fourth this white shaft accompanied by an increasing amount of white on outer web; secondaries brown, with white edges and tips, bases of inner webs also white; innermost secondaries resembling the back, and notched with ashy brown and blackish; lower back and rump dusky brown, with white spots and fringes to the feathers; upper tail-coverts and tail white, barred with black or blackish brown, the bars decreasing toward the outer feathers, where they are broken up into spots on the outer web; crown like the back, but more minutely mottled and more hoary white; forehead and a broad eyebrow white, extending down sides of neck, and forming a large patch on sides of upper breast; lores, sides of face, ear-coverts, and under surface black, excepting abdomen and under tail-coverts, which are pure white; thighs white, streaked with black; under wing-coverts white; axillars black, with slightly indicated fringes of brown at tips; quills below dusky, with white on inner webs; lower primary-coverts pale ashy. 'Bill, legs, feet, and claws black; iris dark hazel.' (*Seebohm.*) Length, 267; culmen, 33; wing, 206; tail, 74; tarsus, 46.

"*Adult female in breeding plumage.*—Above, not so strongly mottled with black as the male, and consequently rather browner, especially on the head; black of face and under parts not so much developed, these parts being mottled with irregular black markings. Length, 279; culmen, 33; wing, 203; tail, 74; tarsus, 46.

"*Adult in winter plumage.*—Differs from the summer plumage chiefly in wanting the black on face and breast, but, from the absence of black mottling on the back, the whole upper surface appears more uniform, being ashy brown with narrow whitish edgings to the feathers, before which is a blackish subterminal shade; lores white, but base of forehead like crown; a line of white above and below eye, but the white eyebrow scarcely visible above the ear-coverts, which are dingy blackish; sides of face white, streaked with dusky; throat and under parts pure white, lower throat and fore neck pale ashy brown, slightly mottled with dusky markings; under wing-coverts white, except the lower primary-coverts, which are dusky ashy; axillars black.

"*Young.*—Like the winter plumage of the adults, and always to be distinguished from the golden plover by the black axillars, though it is spangled with golden buff on the upper surface, as is the latter species." (*Sharpe.*)

The gray plover, known as the black-bellied plover in the United States, is found along the seashore in small numbers during the winter months. As seen in the Philippines it is usually in the gray plumage but as with its very near relative, the golden plover, individuals having the breast mottled with black are not uncommon.

Genus CHARADRIUS Linnæus, 1758.

This genus differs from *Squatarola* in being smaller and in lacking the hind-toe.

91. **CHARADRIUS FULVUS** Gmelin.

PACIFIC GOLDEN PLOVER.

Charadrius fulvus GMELIN, Syst. Nat. (1788). **1**, 167; OATES, Bds. Brit. Burmah (1883), **2**, 364; MCGREGOR and WORCESTER, Hand-List (1906), 22.

Charadrius dominicus SHARPE, Cat. Birds Brit. Mus. (1896), **24**, 195 (part); Hand-List (1899), **1**, 152 (part); OATES, Cat. Birds' Eggs (1902), **2**, 18 (part).

Ca-sa-huit', Calayan; *ma-tang-rá-ca*, Manila.

Balabac (*Steere, Steere Exp.*); Bantayan (*McGregor*); Basilan (*McGregor*); Batan (*McGregor*); Bohol (*Everett*); Calamianes (*Bourns & Worcester*); Calayan (*McGregor*); Cebu (*Everett, McGregor*); Cuyo (*McGregor*); Fuga (*McGregor*); Leyte (*Everett*); Lubang (*McGregor*); Luzon (*Cuming, Meyer, Everett, Heriot, Whitehead, McGregor*); Masbate (*Bourns & Worcester, McGregor*); Mindanao (*Murray, Everett, Steere Exp. Bourns & Worcester, Celestino*); Mindoro (*McGregor*); Negros (*Layard, Steere Exp., Bourns & Worcester, Keay*); Palawan (*Platen, Whitehead, Steere Exp., Bourns & Worcester, White*); Sibay (*McGregor & Worcester*); Sibuyan (*Bourns & Worcester*); Siquijor (*Steere Exp., Bourns & Worcester, Celestino*); Sulu (*Mearns*); Ticao (*McGregor*). Northern Asia and Alaskan coasts of Bering Sea, south in winter to Australia and Polynesia.

"*Male and female in summer.*—Forehead white, continued back over each eye as a broad supercilium and extending down the sides of neck; whole upper plumage black, each feather with large marginal yellow spots on both webs, the spots on the wing-coverts tending to white; primary-coverts and the greater series brown, tipped and margined with white; primaries brown, the central portion of the shaft whitish; secondaries brown tipped with whitish; tail blackish, irregularly barred with white; chin, throat, fore neck, breast, and abdomen black; vent and flanks black mottled with white; under tail-coverts white; axillars smoky brown with white tips.

"*Male and female in winter.*—Upper plumage black, the feathers margined with yellow; wing-coverts margined with dull white; quills and tail much as in summer; forehead and sides of head fulvous, the latter part streaked with brown; chin and upper throat fulvous-white; lower throat, fore neck, and feathers under cheeks and ear-coverts rather bright fulvous with minute streaks of brown; breast grayish, the feathers broadly margined with fulvous; remainder of lower plumage pale buffy white; sides of body more or less marked and fringed with fulvous; axillars smoky brown, tipped with white as in summer. Bill dark brown; iris dark hazel-brown; legs plumbeous; claws horn-color. Length, 254; tail, 63; wing, 160; tarsus, 46; bill from gape, 28. The sexes are of about the same size.

"The golden plover frequents waste ground, grassy plains, and wet paddy-fields, and also the edges of rivers, and is generally met with in flocks of considerable size. It breeds in China, and also it is said in some parts of India, laying four eggs in a hollow lined with a few blades of grass. The eggs are yellowish blotched with blackish sepia." (*Oates.*)

The Eastern golden plover is found in the Philippines on migration and is then usually in its gray winter dress but specimens have been taken with numbers of black feathers from the summer plumage.

Genus OCHTHODROMUS Reichenbach, 1852.

This genus should be united to *Ægialitis* from which its members differ only in being a little larger.

Species.

- a^1. Axillars and under wing-coverts white; wing about 140 mm.
  - b^1. Larger; culmen more than 23 mm........ **geoffroyi** (p. 106)
  - b^2. Smaller; culmen less than 20 mm........ **mongolus** (p. 107)
- a^2. Axillars and under wing-coverts smoky brown; wing about 165 mm. **veredus** (p. 108)

92. OCHTHODROMUS GEOFFROYI (Wagler).

LARGER SAND PLOVER.

Charadrius geoffroyi WAGLER, Syst. Av. (1827), 61.
Ochthodromus geoffroyi SHARPE, Cat. Birds Brit. Mus. (1896), **24**, 217; Hand-List (1899), **1**, 153; OATES, Cat. Birds' Eggs (1902), **2**, 20; MCGREGOR and WORCESTER, Hand-List (1906), 23.

Ma-tang.va-ca de collar, general name for small plovers.

Bantayan (*McGregor*); Batan (*McGregor*); Bohol (*Everett, McGregor*); Cagayancillo (*McGregor*); Cebu (*McGregor*); Cuyo (*McGregor*); Leyte (*Everett*); Lubang (*McGregor*); Luzon (*Whitehead, McGregor*); Negros (*Everett, Bourns & Worcester*); Mindanao (*Mearns*); Mindoro (*McGregor, Porter*); Palawan (*Everett, Lempriére, Platen, Whitehead, Steere Exp., Bourns & Worcester, White*); Panay (*Steere Exp.*); Pata (*Mearns*); Siquijor (*Bourns & Worcester*). Japan, Formosa, and Hainan, south in winter to Africa, India, and Australia.

"*Adult in breeding plumage.*—Above light brown, with a slight olive-greenish gloss, wing-coverts like the back, with obsolete indications of paler fringes to some of the feathers, greater series tipped with white, forming a narrow wing-bar; alula, primary-coverts, and quills brown, primaries darker brown along their outer webs and at tips, shafts white; inner primaries with a white mark toward the base of outer web; secondaries brown, with white fringes to the end of outer web and white tips, shafts white, with a little extension along the sides of the shaft in the inner secondaries; innermost long secondaries like back, outer ones white along their outer web; rump and upper tail-coverts a little lighter and more ashy brown than the back, with white fringes to most of the feathers; sides of rump white; tail ashy brown with a broad white tip, a subterminal shade of darker brown, forming an obsolete, subterminal band; outer feathers with more or less white near base of inner web, outermost one almost entirely white, except for a slight shade of smoky brown and a slightly indicated subterminal shade of darker brown; hinder crown light brown, entirely surrounded by pale cinnamon-rufous, which occupies fore part of crown and extends down sides of neck round hinder neck, where it forms a broad collar of pale cinnamon-rufous; base of forehead white, followed by a narrow black band; lores black; feathers in front of and below the eye black; which unite with a black band along top of ear-coverts; sides of face and under surface of body white; across fore neck and chest a broad band of cinnamon-rufous or light chestnut, which extends a little way down the sides of upper breast; under wing-coverts, axillars, and quill-lining white. Length, 215; culmen, 25; wing, 140; tail, 51; tarsus, 37.

"*Adult in winter plumage.*—Differs from the summer plumage in wanting the rufous chest and in the absence of all facial markings. Above uniform brown, head like the back, hind neck paler and more ashy brown; lores, forehead, eyelid, and a broad eyebrow white; feathers below eye brown extending in a streak along ear-coverts; cheeks and entire under surface white, with a patch of brown on each side of upper breast. 'Bill black; tarsus greenish gray or pale olive; toes dusky or blackish; iris brown.' (*Hume.*)

"*Young.*—Similar to the adults in winter plumage, but dark brown, with faint edges of sandy buff to the feathers of upper surface; eyebrow and sides of face washed with sandy rufous, a strong shade of which color pervades chest and sides of upper breast." (*Sharpe.*)

In winter plumage *Ochthodromus geoffroyi* and *O. mongolus* are very similar but the former may be recognized by its larger size and longer bill. In a male the wing measures 136; tail, 57; exposed culmen, 24; tarsus, 36; middle toe with claw, 24. Wing of a female, 140; tail, 55; exposed culmen, 24; tarsus, 37; middle toe with claw, 23.

93. **OCHTHODROMUS MONGOLUS** (Pallas).

LESSER SAND PLOVER.

Charadrius mongolus PALLAS, Reise Russ. Reichs (1776), **3**, 700.
Ochthodromus mongolus SHARPE, Cat. Birds Brit. Mus. (1896), **24**, 223; Hand-List (1899), **1**, 153; MCGREGOR and WORCESTER, Hand-List (1906), 23.
Ægialitis mongolica GRANT, Ibis (1896), 126.

Basilan (*McGregor*); Batan (*McGregor*); Bohol (*Everett*); Cagayancillo (*McGregor*); Calayan (*McGregor*); Cebu (*McGregor*); Cuyo (*McGregor*); Leyte (*Everett*); Lubang (*McGregor*); Luzon (*Whitehead, McGregor*); Mindanao (*Mearns*); Mindoro (*Porter*); Negros (*Bourns & Worcester*); Palawan (*Platen, Whitehead*); Ticao (*McGregor*). Northern Asia, south in winter to China, Malay Archipelago, and Australia.

"*Adult in breeding plumage.*—Similar to *O. geoffroyi*, but smaller, bill and tarsus much shorter; a broader black line along sides of face; ear-coverts entirely black; the white throat separated from the rufous chest-band by a narrowly indicated line of black. 'Bill black; feet somewhat bluish black, toes darker; iris dark brown.' (*Stejneger.*) Length, 190; culmen, 19; wing, 127; tail, 53; tarsus, 30.

"*Adult female in summer plumage.*—Similar to the male, but less richly colored; rufous chest-band never so pronounced; facial markings less developed, the black bands on the forehead often obsolete. 'Bill black; feet dark gray, with an olive tinge; toes darker, blackish; iris dark hazel.' (*Stejneger.*) Length, 178; culmen, 20; wing, 140; tail, 47; tarsus, 30.

"*Adult in winter plumage.*—Differs from the summer plumage in wanting the facial markings and the rufous chest. Very similar to the winter plumage of *O. geoffroyi*, and distinguished chiefly by its smaller size, shorter bill, and shorter tarsus; there is also a little more brown on the ear-coverts.

"*Young.*—Similar to the adults in winter plumage, but darker brown, all the feathers edged with sandy brown; eyebrow, sides of face, and under surface of body with a strong tint of sandy buff. 'Bill, angle of mouth, and ring round eyes black; legs clear gray; tarsus tinged with yellowish, toes with blackish, and soles with reddish; iris dark brown.' (*Stejneger.*)

"The exact method by which the rufous chest of the summer plumage is gained is not easy to discover. In some specimens in winter dress there is a distinct narrow line of brown across the fore neck; in most of the series of skins in the Museum this is wanting, as it is also in young birds. It may therefore be a sign of very old birds only, as there are traces of brown feathers in an old bird which has not quite attained its full summer plumage. In the specimen in question it is also evident that the rufous breast is being acquired by a change of color in the feather, from brown to rufous, as well as by a molt. Probably only very old birds go through this double process, as in the majority of specimens the rufous breast appears to be gained by a molt only. When first developed all the rufous feathers are edged with white.

"A young bird is described by Dr. Stejneger as somewhat resembling the adult: 'The brownish gray of the back is paler, and each feather narrowly edged with isabella-color, with which also the lower parts are suffused. On the pectoral region a buffish tinge replaces the rufous collar, and the black markings are absent from the head, the cheeks and ear-coverts being slightly dusky; the forehead between the bill and the eyes whitish, suffused with isabella-color.'

"The winter plumage and young livery of the western and eastern forms of *O. mongolus* are, as might have been expected, very difficult to distinguish, but the western form seems always to have a longer tarsus (about 32 mm.), whereas the eastern form has the tarsus about 28 mm." (*Sharpe.*)

94. OCHTHODROMUS VEREDUS (Gould).

EASTERN DOTTEREL.

Charadrius veredus GOULD, Proc. Zool. Soc. (1848), 38.

Ochthodromus veredus SHARPE, Cat. Birds Brit. Mus. (1896), **24**, 232; Hand-List (1899), **1**, 153; MCGREGOR and WORCESTER, Hand-List (1906), 23.

Palawan (*Platen, Bourns & Worcester, White*). Mongolia and China, in winter to the Moluccas and Australia.

"*Adult in summer plumage.*—Similar to *O. geoffroyi*, but with a longer and more slender bill, and distinguished by its smoky brown axillars, under wing-coverts, and quill-linings. Upper parts uniform brown, with slightly indicated rufous edgings to many of the feathers; alula, primary-coverts, and quills dark brown, first primary only having a white shaft, and no white present on inner webs of quills; secondaries uniform dark brown, with an obsolete white fringe to the tips; innermost secondaries like back; tail-feathers brown, with white tips and a subterminal shade of darker brown, outer feather white along outer web; crown brown like back, slightly washed with rufous, as also the hind neck, where, however, there is no distinct collar as in *O. geoffroyi;* forehead white to middle of eye; eyebrow, sides of face, and throat white; lower throat, fore neck, and chest bright chestnut, extending down the sides of the upper breast and followed by a horseshoe mark of black; breast, abdomen, and under tail-coverts pure white; under wing-coverts and axillars dark smoky brown, with ashy whitish tips; quill-lining also dark smoky brown. 'Bill deep olive-brown, blacker on the terminal portion; feet light brownish flesh-color; toes washed with gray, blackish on joints; claws black; eyelids grayish black.' (*Swinhoe.*) Length, 215; culmen, 25; wing, 165; tail, 61; tarsus, 44.

"*Adult in winter plumage.*—Differs from the summer plumage in wanting the rufous chest-band. Above dark brown, including crown; forehead and eyebrow isabelline white, hinder part of the latter shaded with sandy buff, which color also pervades the sides of face and of neck, and forms a faint collar round hind neck; throat isabelline white; lower throat, fore neck, and chest pale brown; remainder of under surface white; under wing-coverts, axillars, and quill-lining smoky brown." (*Sharpe.*)

Genus ÆGIALITIS Boie, 1822.

This genus includes a number of small plovers not differing greatly from *Charadrius* except in size and colors; the plumage is never spotted and, with the exception of a more or less complete dusky band across the chest, the lower parts are pure white.

Species.

a^1. A black or rusty band across fore breast.
  b^1. Shafts of primaries dark, excepting of the first which may be partly or entirely white .... **dubia** (p. 109)
  b^2. Shafts of all the primaries white .... **peroni** (p. 111)
a^2. A smoky brown band on sides of fore breast or faintly across breast. **alexandrina** (p. 112)

95. ÆGIALITIS DUBIA (Scopoli).

LITTLE RINGED PLOVER.

Charadrius dubius Scopoli, Del Flor. et Faun. Insubr. (1786), **2**, 93.

Ægialitis dubia Sharpe, Cat. Birds Brit. Mus. (1896), **24**, 263; Hand-List (1899), **1**, 154; Blanford, Fauna Brit. Ind. Bds. (1898), **4**, 241, fig. 54 (head); Oates, Cat. Birds' Eggs (1902), **2**, 25; McGregor and Worcester, Hand-List (1906), 23.

Basilan (*McGregor*); Bohol (*Everett*); Cagayancillo (*McGregor*); Calayan (*McGregor*); Catanduanes (*Whitehead*); Cebu (*Bourns & Worcester, McGregor*); Guimaras (*Steere Exp.*); Leyte (*Everett*); Lubang (*McGregor*); Luzon (*Everett*); Mindanao (*Everett, Steere Exp., Goodfellow*); Mindoro (*Bourns & Worcester, McGregor*); Negros (*Bourns & Worcester*); Palawan (*Platen, Whitehead, Steere Exp., White*); Panay (*Steere Exp.*); Sibuyan (*McGregor*); Tablas (*Bourns & Worcester*). Europe and northern Asia to Japan, in winter to India, Africa, and Malay Archipelago; accidental in California and Alaska.

"*Adult male.*—Above light brown, a little darker on rump and central tail-coverts; sides of rump and lateral upper tail-coverts pure white; wing-coverts like back; feathers round the bend of wing darker brown; alula blackish with white tips; primary-coverts blackish; primary quills blackish, internally lighter brown, with dark shafts to all the primaries except the first, where it is white; secondaries dusky, lighter and more ashy brown internally, inner secondaries smoky brown, with a good deal of white on both webs, the long inner secondaries like the back; tail ashy brown, tipped with white, and with a subterminal black bar, outer feathers more distinctly edged with white, the two outermost almost entirely white, with a black patch on inner web corresponding to the subterminal bar on the rest of the feathers; base of forehead, lores, feathers above and below eye, and ear-coverts black; a broad frontal band of white, followed by another broad band of black above the eye, which is again succeeded by another black line, which widens out above the eye and forms a distinct eyebrow; hinder crown as far as nape ashy brown; round the neck a broad white collar, continuous with the white throat, and followed by a broad band of black on lower hind neck, and continued across fore neck, widening out on the sides; cheeks, throat, and under surface pure white, including under wing-coverts and axillars. 'Bill dusky black; feet flesh-color; iris dusky brown; ring round eye bright yellow.' (*Emin.*) Length, 173; culmen, 15; wing, 117; tail, 60; tarsus, 25; middle toe with claw, 20.

"*Adult female.*—Similar to the male, but with the markings not so well developed, especially the black markings of the face and the black bands on the hind neck and fore neck, the latter being much mixed with brown. 'Bill black; feet pale flesh-color; iris dark brown; ring round eye bright yellow.' (*Hartert.*) Length, 165; culmen, 16; wing, 117; tail, 60; tarsus, 25.

"*Young.*—Differs from the adults in wanting the black on the head, as well as the black collars on the mantle and fore neck; general tone of the plumage more rufescent than in the adults, and the whole of the upper surface varied with wavy lines of pale sandy buff, before which is a subterminal dusky bar; forehead pale sandy buff; ear-coverts dusky blackish; the collar on the fore neck composed of brown feathers, with generally a tinge of sandy buff on the throat. The black markings on the head and the black collars are gained by a molt in the following spring. There appears to me to be also a change of feathers especially on the neck collar." (*Sharpe.*)

This little plover was abundant along the Baco River in the vicinity of Balete, Mindoro, where it nested on the extensive gravel-flats exposed by low water. A nest found April 24, 1905, was a slight hollow, lined with a mosaic of small pebbles. The three eggs measure 30.4 by 21.8; 28.9 by 21.8; 30.9 by 21.8. Their ground-color is very pale gray, almost white, carrying a considerable number of small lilac-colored spots. Small spots and irregularly shaped markings of dark brown are scattered over the entire surface, but are more numerous on the larger end.

"A resident species, usually met with about small fresh-water streams in the interior." (*Bourns and Worcester MS.*)

96. **ÆGIALITIS PERONI** (Bonaparte).

MALAY SAND PLOVER.

Charadrius peroni BONAPARTE, Compt. Rend. (1856), **43**, 417.
Ægialitis peroni SHARPE, Cat. Birds Brit. Mus. (1896), **24**, 273; Hand-List (1899), **1**, 154; GRANT and WHITEHEAD, Ibis (1898), 247, pl. 6. fig. 8 (egg); OATES, Cat. Birds' Eggs (1902), **2**, 25; MCGREGOR and WORCESTER, Hand-List (1906), 23.

Bantayan (*McGregor*); Basilan (*McGregor*); Bohol (*Everett*); Calayan (*McGregor*); Cebu (*McGregor*); Fuga (*McGregor*); Leyte (*Everett*); Lubang (*McGregor*); Luzon (*Whitehead, McGregor*); Mindanao (*Steere Exp., Everett*); Mindoro (*Porter*); Negros (*Steere Exp.*); Palawan (*Lempriere, Whitehead, Platen*); Romblon (*McGregor*); Sibutu (*Everett*); Sibuyan (*McGregor*); Siquijor (*Steere Exp., Bourns & Worcester*); Ticao (*McGregor*). Greater Sunda Islands to Celebes.

"*Adult male.*—Above light ashy brown, darker on rump and central upper tail-coverts; sides of rump and lateral upper tail-coverts pure white; wing-coverts like the back, with a band of dark sepia-brown along marginal coverts; greater coverts broadly tipped with white; alula and primary-coverts dark brown, with white tips, the shafts conspicuously white; inner primaries white toward base of outer web; secondaries dark brown, white at ends of outer web, increasing in extent toward the innermost; long inner secondaries like the back; four center tail-feathers dark brown, next pair smoky brown, next pair white with a little smoky brown at the ends, remainder pure white; crown rufous, with a nuchal collar of pure white, this collar followed by a broad black band on hind neck overspreading mantle; forehead white, reaching to above eye and separated from rufous of crown by a tolerably broad band of black; a distinct loral streak of black; sides of face and ear-coverts with a black band along upper margin of the latter; cheeks and under surface pure white, with a large black patch on each side of fore neck; under wing-coverts and axillars white; quills below ashy gray. 'Bill black, orange at base; feet gray, claws black; iris warm chocolate-brown; orbital ring pure orange.' (*Everett.*) Length, about 150; culmen, 16; wing, 95; tail, 39; tarsus, 27; middle toe with claw, 20.

"*Adult female.*—Similar to the male, but without the black band across forehead; black on mantle and hind neck represented by dark brown mixed with rufous; black patch at the side of fore neck replaced by dark brown mixed with rufous, with a tinge of the latter color spreading across fore neck. 'Bill black, base yellowish; feet purplish gray; iris dark brown.' (*Everett.*) Length, 140; culmen, 16; wing, 102; tail, 38; tarsus, 27.

"In some specimens, apparently very old males, the black band is continued right across the fore neck.

"Young birds resemble the adults, but have no facial black markings or any black or rufous on the mantle or sides of the chest, the whole of the upper surface being uniform ashy brown, with broad sandy-buff margins." (*Sharpe.*)

This little plover differs from *Ægialitis dubia* and *Æ. alexandrina* in having a comparatively stout bill.

Whitehead took three eggs of the Malay sand-plover at Cape Engaño, Luzon, on May 26, 1895. They are described as follows: "Shape short ovate. Ground-color pale cream; the whole shell with small blotches, streaks, and zigzag pencillings of rich sepia and pale lavender. Measurements 30 mm. by 22 mm. The three eggs were deposited on the bare sand among sea-drift and only a few yards above high-water mark. The female was shot. On the same day young plovers nearly ready to fly were captured." (*Grant and Whitehead.*)

97. **ÆGIALITIS ALEXANDRINA** (Linnæus).

KENTISH PLOVER.

Charadrius alexandrinus LINNÆUS, Syst. Nat. ed 10, (1758), **1**, 150.
Ægialitis alexandrina SHARPE, Cat. Birds Brit. Mus. (1896), **24**, 275; Hand-List (1899), **1**, 154; OATES, Cat. Birds' Eggs (1902), **2**, 26; MCGREGOR and WORCESTER, Hand-List (1906), 24.

Bohol (*Everett, Steere Exp.*); Calayan (*McGregor*); Cebu (*McGregor*); Cuyo (*McGregor*); Mindanao (*Everett*); Palawan (*Whitehead, Platen, Everett, Steere Exp.*); Panay (*Steere Exp.*); Siquijor (*Steere Exp.*); Ticao (*McGregor*). Europe and central Asia to China and Japan, in winter to Africa, Indian Peninsula, and Australia.

"*Adult male in breeding plumage.*—Above pale earthy brown, with faint remains of paler margins to the feathers; wing-coverts like back, marginal ones blackish brown, greater series darker brown with a narrow white edging to the tip; alula and primary-coverts dark sepia-brown, the latter fringed with white at the tip; quills sepia-brown, with white shafts to the primaries, which are pale brown on inner web; inner primaries for the most part white toward the base of outer web; secondaries dusky brown with white tips, inner ones also white along the margins of both webs, innermost long secondaries brown like back; lower back, rump, and upper tail-coverts dark sepia-brown, lateral ones white, forming a patch on each side; the four center tail-feathers dark sepia-brown, paler toward the base, and having white shafts to the center ones, three outer feathers white, next ones smoky brown, with white shafts; crown ashy brown, washed with light tawny-rufous, especially distinct toward nape; hind neck and sides of neck white, forming a collar; forehead and a distinct eyebrow white, with a broad black band separating white of forehead from brown of crown; eyelid and loral streak black; feathers below the eye and sides of face white, with a black patch on hinder ear-coverts; cheeks and under surface pure white, with a patch of black on each side of chest; under wing-coverts and axillars white; quills below light ashy like the lower primary-coverts. 'Bill black, with the base of lower mandible of a dusky flesh-color; tarsi dusky, toes darker, claws black; iris brown.' (*Macgillivray.*) Length, 165; culmen, 18; wing, 105; tail, 43; middle toe with claw, 18.

"*Adult female.*—Similar to the male, but with less rufous on the head, this being represented by a tinge over the eye and round the nape; black band on the fore part of crown absent; black patch on each side of the chest represented by a brown patch with a rufous tinge. Length, 165; culmen, 18; wing, 109; tail, 48; tarsus, 28.

"The Kentish plovers which attain their breeding plumage in the plains of India are certainly much brighter in color than any which are seen in Europe. The black forehead and patch at the side of the chest are also strongly developed. Occasionally a rufous tinge overshades the back.

"*The adult bird in winter plumage* differs from the summer plumage in the entire absence of bright rufous on the head, and the black markings on the face and sides of the breast are also not developed. The head is like the back, the forehead and eyebrow are white, the lores dusky, and there is always a more or less distinct white collar united to the two sides of the neck.

"*Young birds in first winter plumage* only differ from the adults in having the whole upper surface distinctly marked with pale edges to the feathers." (*Sharpe.*)

This plover appears to be a winter visitant to the Philippines and may be found in small flocks along the seashore wherever there are tide-flats. It differs from both *Æ. dubia* and *peroni* in being slightly larger and in having an incomplete band on the fore breast.

Subfamily HIMANTOPODINÆ.

Genus HIMANTOPUS Brisson, 1760.

Bill long, slender, straight, and pointed; wing long and slender, reaching well beyond tip of tail, first primary much the longest: tail short and square; legs extremely long and slender; bare portion of tibia equal to three-fourths of tarsus, the latter two and one-half times as long as middle toe with claw; toes webbed at base; hind toe wanting.

98. HIMANTOPUS LEUCOCEPHALUS Gould.

AUSTRALIAN STILT.

Himantopus leucocephalus GOULD, Proc. Zool. Soc. (1837), 26; SHARPE, Cat. Birds Brit. Mus. (1896), 24, 317; Hand-List (1899), 1, 156; OATES, Cat. Birds' Eggs (1902), 2, 34; MCGREGOR and WORCESTER, Hand-List (1906), 24.

Basilan (*McGregor*); Mindanao (*Cuming, Everett, Steere Exp., Celestino*). Greater Sunda Islands, Moluccas, Australia, New Guinea.

Male.—A narrow black collar on hind neck; entire wings, their coverts, and scapulars glossy black; rest of the plumage white. Bill and nails black; legs and feet bright red, said to be pink in life. Length, about 350; wing, 220; tail, 77; exposed culmen, 59; tarsus, 126.

Female.—Smaller and the scapulars dark brown. Wing, 210; tail, 75; exposed culmen, 58; tarsus, 110.

"*Young.*—Brown on the upper back and inner secondaries; the hind neck, from the nape to the mantle, ashy gray, mottled with dusky subterminal bars to the feathers; crown dull ashy gray; lores and fore part of face white like the under surface of the body." (*Sharpe.*)

The stilt, even at a considerable distance, is easily recognized by its very long, slender, red legs. I observed a solitary individual in Malamaui Island near Basilan and Celestino collected a number of specimens in northern Mindanao.

Subfamily TOTANINÆ.

Bill long, slender, usually straight, in some species gently curved; tarsus scutellate both in front and behind except in *Numenius* which has the back of tarsus reticulate and the bill very long and decurved: toes slightly webbed at base.

Genera.

a^1. Tarsus transversely scaled in front, reticulated behind; culmen more than 65 mm.: bill decurved........ **Numenius** (p. 114)
a^2. Tarsus transversely scaled both in front and behind.
  b^1. Bill decurved; culmen less than 50 mm........ **Mesoscolopax** (p. 119)
  b^2. Bill straight or slightly upturned.
    c^1. Much larger; culmen more than 70 mm.; bill recurved and slightly exceeding tail .... **Limosa** (p. 119)
    c^2. Much smaller; culmen less than 65 mm.
      d^1. Culmen equal to, and usually greater than, middle toe with claw.
        e^1. Tarsus longer than middle toe with claw.
          f^1. Tarsus about one and one-half times the length of middle toe with claw.
            g^1. Culmen not recurved........ **Totanus** (p. 122)
            g^2. Culmen slightly recurved........ **Glottis** (p. 129)
          f^2. Tarsus but little greater than middle toe with claw.
            g^1. Culmen slightly recurved .... **Terekia** (p. 127)
            g^2. Culmen not recurved.
              h^1. Axillars not uniform white.
                i^1. Axillars gray .... **Heteractitis** (p. 124)
                i^2. Axillars brown barred with white........ **Helodromas** (p. 123)
              h^2. Axillars pure white........ **Actitis** (p. 126)
      d^2. Culmen shorter than middle toe with claw, about equal to toe without claw .... **Rhyacophilus** (p. 130)

Genus NUMENIUS Brisson, 1760.

Back of tarsus covered with small hexagonal scales. Large wading birds with long legs; bill very long and decurved, tip of upper mandible blunt and projecting beyond the lower mandible.

Species.

a^1. Culmen, 115 mm. or more; crown uniform in color with the back.
  b^1. Lower back and rump white or with streaks and spots of black; axillars pure white or with traces of dusky lines.............................. **arquatus** (p. 115)
  b^2. Lower back and rump brown; axillars white, broadly barred with blackish. **cyanopus** (p. 116)
a^2. Culmen, 90 mm. or less; crown blackish with a pale or whitish central vertical band .... **variegatus** (p. 117)

99. NUMENIUS ARQUATUS (Linnæus).

COMMON CURLEW.

Scolopax arquata LINNÆUS, Syst. Nat. ed. 10 (1758), **1**, 145.
Numenius arquatus SHARPE, Cat. Birds Brit. Mus. (1896), **24**, 341; OATES, Cat. Birds' Eggs (1902), **2**, 36.
Numenius arquata SHARPE, Hand-List (1899), **1**, 157; BLANFORD, Fauna Brit. Ind. Bds. (1898), **4**, 252, fig. 58 (head); MCGREGOR and WORCESTER, Hand-List (1906), 24.

Masbate (*Bourns & Worcester*); Negros (*Steere Exp., Bourns & Worcester*); Palawan (*Whitehead, Bourns & Worcester*); Samar (*Whitehead*). India and Africa; Europe east to Lake Baikal, in winter to southern China and Malay Peninsula.

"*Adult male in breeding plumage.*—Above brown, with longitudinal black centers to the feathers imparting a broadly striped appearance; feathers of upper surface notched with ashy or rufous, giving to many of the scapulars a somewhat barred appearance; wing-coverts dark brown, edged with whity brown, median and greater series also checkered with whity brown, imparting a somewhat barred appearance to this part of the wing; alula, primary-coverts, and primaries blackish, externally glossed with bottle-green; primary-coverts slightly tipped with white, shafts of outer primaries white, those of inner ones brown, primaries notched or barred, on inner web only, with sandy buff or whitish, inner primaries thus marked on both webs; secondaries distinctly barred with brown and white, both webs being deeply notched with ashy whitish; innermost secondaries ashy brown with dusky brown cross-bars, the center of the feathers being also dusky brown; lower back and rump pure white with black longitudinal spots or streaks, a little more distinct on the rump; upper tail-coverts barred with black and white or with sagittate subterminal spots, the longer ones tinged with sandy buff, giving a streaked appearance; neck more ashy, streaked with brown; over the eye a white streak, narrowly lined with black; sides of face and sides of neck, throat, and chest pale sandy buff streaked with blackish brown, more narrowly on the sides of face; chin and upper throat white; breast, abdomen, sides of body, thighs, and under tail-coverts white, streaked with dark brown on breast, and very narrowly on abdomen and under tail-coverts; thighs unstreaked; sides of body with distinct bars or sagittate markings of dark brown; under wing-coverts and axillars pure white, mottled with blackish centers to the feathers; axillars more or less regularly barred with blackish or with subterminal, heart-shaped spots; lower primary-coverts and quills below ashy gray with white notches to the inner webs. 'Bill fleshy brown, shading into dark brown toward the tip; feet dusky; iris brown.' (*Shelley.*) Length, 533; culmen, 121; wing, 279; tail, 108; tarsus, 74.

"*Adult female in breeding plumage.*—Similar to the male, but larger, and with a longer bill. Length, 610; culmen, 155; wing, 305; tail, 145; tarsus, 81.

"*Adults in winter plumage.*—Very similar to the breeding plumage, but paler, and much less heavily striped, especially on the under surface of the body; the black spots and streaks on the rump scarcely apparent, and concealed by the white plumage; upper tail-coverts white, with very few brown cross-bars; tail white, barred with brown. 'Feet pale leaden gray, claws blackish; bill blackish brown, flesh-color at the base of the lower mandible.' (*Hume.*)

"There is evidently a spring molt, but whether partial or entire I have not been able to determine. The breeding plumage is gained by a widening of the longitudinal centers to the feathers, of which the pattern changes on several portions of the body. Such parts as the rump and the abdomen and under tail-coverts have scarcely any visible streaks, but these appear with the summer plumage and are gained by a change of the feather. The sides of the body change from a streaked to a barred appearance, this being effected by a preliminary widening of the brown centers to the feathers which develop into bars without any direct molt. The innermost secondaries, at the autumn molt, seem to be entirely uniform, and the bars make their appearance gradually.

"*Young.*—Differs from the adult in being much more tawny, and, as Seebohm has pointed out, young birds may always be distinguished from the old ones by the much lighter patterns of the notches and bars in the innermost secondaries, these markings being tawny buff, and the black centers to the feathers being much broader." (*Sharpe.*)

This large curlew is extremely wary and although individuals are occasionally seen on tide-flats, they are difficult to kill.

100. **NUMENIUS CYANOPUS** Vieillot.

ASIATIC CURLEW.

Numenius cyanopus VIEILLOT. N. Dict. d'Hist. Nat. (1817), 8, 306; SHARPE, Cat. Birds Brit. Mus. (1896), 24, 350; Hand-List (1899), 1, 158; MCGREGOR and WORCESTER, Hand-List (1906), 24.

Bohol (*McGregor*); Cebu (*McGregor*); Negros (*Steere Exp., Bourns & Worcester*). Japan and eastern Siberia, in winter to Australia.

"*Adult female in breeding plumage.*—Similar to *N. arquatus* and of the same size, but distinguished by the dark lower back and rump and the regular barring of axillars and under wing-coverts. General appearance more fulvous; under surface tinged with vinous-buff all over; lower back and rump sandy buff with blackish brown centers to the feathers, thus greatly resembling the rest of back; upper tail-coverts barred with blackish brown and sandy buff or white. 'Bill black, flesh-colored at base of lower mandible; feet bluish gray; iris dark brown.' (*Taczanowski.*) Length, 610; culmen, 183; wing, 318; tail, 117; tarsus, 88.

"*Adult male.*—In this species the difference in size between the sexes is not so apparent as in some of the allied ones. Length, 533; culmen, 173; wing, 302; tail, 109; tarsus, 81.

"*Young.*—Much more tawny than the adults and having tawny-buff bars or notches on the innermost secondaries; the streaks on the under surface very fine and narrow.

"*Adults in winter plumage* do not differ very much from the summer plumage, but the under surface is much less distinctly streaked; the upper surface is very similar at both times of the year." (*Sharpe.*)

This curlew like the next preceding is a large bird and usually, singly or in pairs, is found feeding on flats exposed at low tide.

101. **NUMENIUS VARIEGATUS** (Scopoli).

EASTERN WHIMBREL.

Tantalus variegatus SCOPOLI, Del. Flor. et Faun. Insubr. (1786), **2**, 92.
Numenius variegatus SHARPE, Cat. Birds Brit. Mus. (1896), **24**, 361; Hand-List (1899), **1**, 158; MCGREGOR and WORCESTER, Hand-List (1906), 24.

Ta-ling'-ting, Cagayancillo.

Bantayan (*McGregor*); Bohol (*McGregor*); Cagayancillo (*McGregor*); Cebu (*Steere Exp., Bourns & Worcester, McGregor*); Cuyo (*Meyer*); Lubang (*McGregor*); Luzon (*Heriot*); Malanipa (*Murray*); Mindanao (*Platen, Goodfellow*); Negros (*Steere Exp., Keay*); Palawan (*Whitehead*); Panay (*Steere Exp.*); Samar (*Sanchez*); Siquijor (*Steere Exp., Bourns & Worcester*); Ticao (*McGregor*)*. Japan and eastern Siberia, in winter southern China to Australia.

"*Adult male in breeding plumage.*—Above nearly uniform dark brown, excepting for the broad, ashy brown markings on mantle and upper back; wing-coverts like back, but margins paler and more whitish, greater series with whitish notches on both webs; alula and primary-coverts dark brown, fringed with white at the ends; primaries blackish brown, notched with white on inner webs, which have a barred appearance along the edge; inner primaries notched with white on both webs; secondaries brown, notched on outer webs and barred on inner; innermost secondaries nearly uniform with the back; shaft of outer primary white, of second whity brown, and of the rest pale brown; lower back and rump white, very thickly mottled with spots and bars of brown; upper tail-coverts barred with brown and whitish, the brown bars somewhat irregular and not coterminous; tail ashy brown, tipped with white, and crossed by regular bars of dark brown, about nine in number; center of crown whitish and streaked with brown, remainder of crown dark brown, forming two broad bands and followed by a broad eyebrow of dull white and narrowly streaked with small lines of blackish; lores and upper margins of ear-coverts dark brown; remainder of sides of face and neck pale brown, streaked with darker brown, cheeks somewhat whiter; chin and upper throat white, with scarcely any brown spots; lower throat, breast, and sides of body pale, rufescent buff, thickly clouded with longitudinal streaks of dark brown on throat and breast; dark brown bars of a more or less sagittate shape on sides of body and flanks; abdomen and under tail-coverts white, the latter with streaks and bars of dark brown; under wing-coverts and axillars white with broad dusky brown bars, very distinct on the latter. 'Bill blackish, dark brown at base of lower mandible; feet dark lead-color; claws black; iris very dark brown.' (*Taczanowski.*) Length, 380; culmen, 76; wing, 223; tail, 96; tarsus, 55.

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* The Ticao specimen was listed as *Numenius arquata*, McGregor and Worcester, Hand-List, p. 24; it is really a specimen of *N. variegatus*.

"*Adult female in breeding plumage.*—Similar to the male.

"*Young birds* may always be distinguished by the more mottled appearance of upper surface, most of the feathers being spotted on both webs with whitish or pale, rufescent buff; lower back and rump plentifully mottled with spots of dusky brown, and innermost secondaries very distinctly notched with rufescent buff; streaks on throat and breast and bars on flanks almost as plentifully developed as in the adult; bars on axillars often very incomplete, and, in rare instances, absent.

"The differences between this race and the whimbrel (*N. phæopus*) of Europe are not so strongly pronounced in all cases as to render the determination of specimens always a matter of certainty. Some of the Philippine specimens, for instance, are very difficult to separate from European examples, and many others also appear to be intermediate between the two forms." (*Sharpe.*)

The above descriptions of the adult male and of the young are slightly modified from Sharpe's descriptions of *Numenius phæopus* of which the eastern whimbrel is but a subspecies.

The eastern whimbrel is much smaller than either of the two preceding species and usually it may be killed with little trouble. In the vicinity of tide-flats at high water it often congregates in flocks, but as the feeding grounds become exposed the individuals scatter to various parts following the receding tide. In length the male is about 420; wing, 205; tail, 100; exposed culmen, 82; tarsus, 53; middle toe with claw, 41. Wing of female, 240; tail, 110; exposed culmen, 79; tarsus, 60.

Genus MESOSCOLOPAX Sharpe, 1896.

In structure this genus is similar to *Numenius* but the tarsus is transversely scutellated both in front and behind.

102. MESOSCOLOPAX MINUTUS (Gould).

PYGMY CURLEW.

Numenius minutus GOULD, Proc. Zool. Soc. (1840), 176.

Mesoscolopax minutus SHARPE, Cat. Birds Brit. Mus. (1896), **24**, 371; Hand-List (1899), **1**, 159; MCGREGOR and WORCESTER, Hand-List (1906), 25.

Marinduque (*Steere Exp.*); Mindanao (*Mearns*). China, eastern Siberia, Korea, and Mongolia; in winter Japan to Australia.

"*Adult female.*—Above blackish, mottled with sandy-buff spots and margins; wing-coverts blackish brown, with sandy-buff edges inclining to whitish on greater coverts, which show traces of dusky bars: lesser coverts, alula, primary-coverts, and quills blackish brown; first primary with a white shaft, all the quills rather paler brown on inner web: long inner secondaries tawny on both webs, with dark brown centers and notches; lower back, rump, and upper tail-coverts blackish, mottled with spots of ashy white, with which color also the feathers are tipped; upper tail-coverts regularly barred with ashy and blackish; tail-feathers ashy gray narrowly barred with blackish; bars six in number, but not always strictly continuous across the feathers; crown blackish, feathers slightly margined with sandy buff; along center of crown a pale streak of the latter color; lores, eyebrow, and sides of face uniform isabelline buff; upper margins of ear-coverts slightly streaked with dark brown; throat whitish; lower throat and fore neck sandy buff like the sides of body, the former streaked, and the latter barred with dusky brown; center of breast, abdomen, and under tail-coverts isabelline whitish; under wing-coverts and axillars pale sandy buff, with bars of dusky brown, mostly triangular in shape, the axillars having a slight vinaceous tinge. 'Bill blackish brown, flesh-color at base of lower mandible; feet gray; iris dark brown.' (*Dybowski.*) Length, 330; culmen, 44; wing, 180; tail, 72; tarsus, 46. (*Sharpe.*)

"Obtained by Bourns in 1888, while with the Steere Expedition, and not mentioned by Steere." (*Bourns and Worcester MS.*)

Genus LIMOSA Brisson, 1760.

Legs and bill long and slender, the latter gently curved upward; culmen, 100 mm. or more.

Species.

a^1. Tail barred with blackish brown and white .... **baueri** (p. 120)

a^2. Tail with a white base and broad, black, terminal band; upper tail-coverts pure white .... **limosa** (p. 121)

103. **LIMOSA BAUERI** Naumann.

PACIFIC GODWIT.

Limosa baueri NAUMANN, Vög. Deutschl. (1834), 8, 429.
Limosa novæ-zealandiæ GRAY, Gen. Birds (1847), 3, 570; SHARPE, Cat. Birds Brit. Mus. (1896), 24, 377; Hand-List (1899), 1, 159; MCGREGOR and WORCESTER, Hand-List (1906), 25.

Bantayan (*McGregor*); Bohol (*Everett, McGregor*); Cuyo (*McGregor*); Luzon (*Celestino*); Negros (*Steere Exp.*); Samar (*Whitehead*). Alaska and eastern Siberia; south in winter to Australia, New Zealand, and Oceania.

"*Adult male in breeding plumage.*—Above blackish mottled with pale chestnut-red; wing-coverts dark brown, with white edgings; many of the coverts tinged with chestnut, especially inner greater coverts; alula, primary-coverts, and quills blackish; secondaries brown, edged with white, a longitudinal, subterminal mark of white along inner web; innermost secondaries like the back; feathers of lower back and rump blackish with white edges; upper tail-coverts barred with black and white or chestnut and black; tail brown, tipped and barred with white, the bars sometimes tinged with chestnut; crown-feathers chestnut, streaked with blackish brown centers, narrower on hind neck; broad eyebrow chestnut; lores and sides of face chestnut with numerous blackish spots on lores; a whitish spot under eye; lower parts chestnut with blackish streaks on sides of upper breast; under wing-coverts white with indistinct, dusky brown spots; axillars white barred with dusky brown. 'Bill clear reddish for its basal half, blackish toward the terminal part, the base of the lower mandible paler; feet blackish brown; iris brown.' (*Taczanowski.*) Length, 395; wing, 220; tail, 77; culmen, 86; tarsus, 52; middle toe with claw, 36.

"*Adult female in breeding plumage.*—Similar to the male, but not so entirely cinnamon-rufous below, and with remains of brown bars on the under surface, especially on the flanks. Length, 406; culmen, 109; wing, 240; tail, 82; tarsus, 58.

"*Young.*—The young birds may be told from the adults in winter plumage by their more tawny color, and by the ashy gray shade on the throat and chest, as well as by the fulvescent bars and notches to the feathers of the upper surface." (*Sharpe.*)

Winter plumage.—Above ashy brown with rusty shaft-lines; back, rump, and upper tail-coverts white with more or less hidden black arrow marks of dark brown, these taking the form of bars on longest coverts; below nearly pure white; slightly dusky on breast and with a few narrow shaft-lines on breast; under tail-coverts with broken, dusky bars; primaries blackish brown; wing-coverts and secondaries with broken, dusky bars; primaries blackish brown; coverts and secondaries gray with blackish shaft-lines and hoary edges.

Birds taken in the Philippines in the spring are in the white and gray winter dress, but in the autumn (September) many individuals arrive in nearly perfect breeding plumage, while others are in mixed plumage, showing numerous light feathers among the dark and chestnut feathers of the summer dress.

104. **LIMOSA LIMOSA** (Linnæus).

BLACK-TAILED GODWIT.

Scolopax limosa LINNÆUS, Syst. Nat. ed. 10 (1758), **1**, 147.

Limosa limosa SHARPE, Cat. Birds Brit. Mus. (1896), **24**, 381; Hand-List (1899), **1**, 159; OATES, Cat. Birds' Eggs (1902), **2**, 40; MCGREGOR and WORCESTER, Hand-List (1906), 25.

Limosa belgica BLANFORD, Fauna Brit. Ind. Bds. (1898), **4**, 254, fig. 59 (head).

Luzon (*Celestino*); Negros (*Everett*, *Steere Exp.*); Samar (*Whitehead*). Central and northern Europe to valley of Ob River; in winter Mediterranean countries and northeastern Africa.

"*Adult male in winter plumage.*—Above ashy brown, with slightly paler edges to the feathers; lower back and rump blackish brown; upper tail-coverts white, long ones tipped with black: lesser wing-coverts darker brown than back; median coverts dusky brown, lighter brown externally and fringed with white, forming a wing-band; alula blackish; primary-coverts blackish, the inner ones broadly tipped with white; primaries blackish, with white shafts, the greater part of the inner webs white, and then subterminally brown, the white extending to the base of the outer web on all but the first primary and increasing in extent on the inner primaries and secondaries, the latter being white with broad, blackish tips, which gradually diminish in size on the inner secondaries; the innermost secondaries brown like the back; tail white at the base, with a broad, black, terminal band, gradually decreasing in size toward the outer feathers, which are edged with white at the tip, the center feathers brownish at the tip; head ashy brown, the forehead more hoary; an indistinct whitish eyebrow extending from the base of the nostril to behind the eye; lores dusky gray; below the eye a whitish spot; sides of face, sides of neck, throat, and chest light ashy brown, a little darker on the sides of the body; fore part of cheeks and upper throat white, as well as the whole of the center of the breast, abdomen, under tail-coverts, under wing-coverts, and axillars; edge of wing mottled with dark brown bases to the feathers; quill-lining white. 'Bill pale fleshy, blackish brown at the tip; feet olivaceous-green, toes blackish brown; iris brown.' (*Hume.*) Length, 417; culmen, 112; wing, 223; tail, 76; tarsus, 81.

"*Adult female in winter plumage.*—Similar to the male in color, but rather larger. 'Bill livid pink, blackish horny at the tip; feet blackish plumbeous, toes brownish; iris brown.' (*Hume.*) Length, 444; culmen, 127; wing, 216; tail, 76; tarsus, 85.

"*Adult male in summer plumage.*—Differs in having the back more or less mottled with rufous and black, crown rufous with short, broad streaks of black, sides of face and entire neck all round rufous, fore neck and breast overshaded with rufous and barred with dusky blackish, these bars also developed on abdomen and on the sides of body.

"*Adult female in summer plumage.*—Similar to the male, but with less rufous, and distinguished by the larger size.

"*Young.*—Distinguished from the adults by being darker brown above, with broad, sandy-rufous edges to the feathers of the upper surface, the innermost secondaries banded with blackish brown and sandy rufous; the head rufous, streaked with dark brown, but indistinctly; sides of face buffy white, with very fine streaks of brown; throat white; lower throat, sides of neck, and chest reddish buff, slightly mottled with dusky bases to the feathers of the side of breast; remainder of under surface white, suffused with rufescent buff, and shaded with ashy brown on the sides of the body.

"It is evident from the molting specimens in the collection that the black markings are acquired first, and that the rufous-color overspreads the plumage afterwards. Great variation in the amount of the nuptial decoration is seen in the series, and sometimes very old individuals have the abdomen, and even the under tail-coverts, barred." (*Sharpe.*)

The black-tailed godwit is extremely rare in the Philippines, the only specimens examined by me being two killed near Manila, in February, 1908.

Genus TOTANUS Bechstein, 1803.

Culmen straight, equal to tarsus: secondaries and rump white.

105. **TOTANUS EURHINUS** (Oberholser).

ASIATIC REDSHANK.

Totanus calidris Sharpe, Cat. Birds Brit. Mus. (1896), **24**, 414 (part); Hand-List (1899), **1**, 160 (part); Oates, Cat. Birds' Eggs (1902), **2**, 43 (part).

Totanus totanus eurhinus Oberholser, Proc. U. S. Nat. Mus. (1900), **22**, 207.

Totanus eurhinus McGregor and Worcester, Hand-List (1906), 25.

Bantayan (*McGregor*); Basilan (*McGregor*); Bohol (*Everett, McGregor*); Cebu (*Bourns & Worcester, McGregor*); Cuyo (*McGregor*); Mindanao (*Mearns*); Mindoro (*Porter*); Negros (*Steere Exp., Bourns & Worcester*); Palawan (*Platen, Whitehead*); Siquijor (*Steere Exp., Bourns & Worcester*). Central and eastern Asia, south in winter to Malay Archipelago.

"*Male.*—Above rufescent broccoli-brown, the feathers everywhere with dark brown centers, the back more or less irregularly barred with the same; rump pure white, sparingly marked with brownish; tail and upper tail-coverts dull white, heavily barred with sepia-brown, the terminal portion of central tail-feathers buffy; wings fuscous, the innermost secondaries like the back and barred on exposed portions with dark brown; remainder of secondaries white, but pale brown on concealed bases; greater coverts white or grayish distally, brownish gray basally, and barred with sepia; median coverts brownish gray, barred with sepia; lesser coverts almost plain; lower surface white, more or less heavily marked throughout with sepia, these markings taking on throat and breast the form of broad streaks, on flanks, sides, and crissum of bars, and elsewhere of more or less irregular spots; lining of wing white, varied with brownish, except on axillars. 'Length of male, 292; of female 298; bill black, orange-brown at base beneath; iris dark brown: feet orange-red; claws black.' (*Abbott.*)

"The form of *Totanus totanus* inhabiting Central and Eastern Asia, although seemingly identical with the European bird in color and markings, is yet so much larger, particularly in length of wing, tail, and culmen, that its separation as a subspecies appears to be warranted." (*Oberholser.*)

Taking the measurements of three males and two females from Central Asia as recorded by Oberholser gives the following average measurements: Wing, 163; tail, 66.8; exposed culmen, 46.6; tarsus, 47.2; middle toe, 30.2.

A male from Cuyo measures: Wing, 159; tail, 61; exposed culmen, 46; tarsus, 49; middle toe with claw, 34. A female from Cuyo, wing, 151; tail, 59; exposed culmen, 43; tarsus, 47; middle toe with claw, 35.

I refer Philippine specimens of the redshank to the Asiatic subspecies as being the one more likely to occur here if two races of *Totanus totanus* be recognized.

Genus HELODROMAS Kaup, 1829.

Bill straight, equal to tarsus, greater than middle toe with claw; rump and tail-coverts white.

106. **HELODROMAS OCHROPUS** (Linnæus).

GREEN SANDPIPER.

*Tringa oerophus** Linnæus, Syst. Nat. ed. 10 (1758), 1, 149.
Helodromas ochropus Sharpe, Cat. Birds Brit. Mus. (1896), 24, 437; Hand-List (1899), 1, 160; Oates, Cat. Birds' Eggs (1902), 2, 44; McGregor and Worcester, Hand-List (1906), 25.

Bohol (*McGregor*); Luzon (*Everett, Steere, Whitehead*); Negros (*Whitehead*); Samar (*Steere*). Africa, Europe, and northern Asia; in winter to Indian Peninsula and Malay Archipelago.

"*Adult male in winter plumage.*—Above uniform olive-brown with a slight gloss of bronzy olive; scapulars and wing-coverts like back, but having a few tiny white spots on the margins; lower back and rump darker, blackish brown with white edges to the feathers; upper tail-coverts pure white; lesser wing-coverts, outer median, and outer greater coverts uniform olive-brown; alula, primary-coverts, and quills blackish brown, secondaries like the back and freckled with tiny white spots on the edges; tail-feathers white, the center ones with three black bars on the terminal half, these bars disappearing gradually on the lateral feathers, outer ones being entirely white; crown, hind neck, and mantle uniform ashy brown; a supra-loral streak of white; lores dusky, surmounted by an indistinct, white eyebrow, lined with blackish streaks; sides of face, ear-coverts, and cheeks white, rather broadly streaked with blackish brown; throat white, streaked with brown on the sides; lower throat, sides of neck, and fore neck also distinctly streaked with brown; remainder of under surface pure white; sides of upper breast brown, slightly mottled with white; under wing-coverts and axillars blackish, barred very plainly with white; lower primary-coverts and inner lining of quills uniform, with white dots along the inner edge of the secondaries. 'Bill dusky above, reddish beneath; feet grayish blue, tinged with green; iris dusky.' (*Macgillivray.*) Length, 228; culmen, 35; wing, 137; tail, 56; tarsus, 33.

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* "*Oerophus*" is said to be a misprint.

"*Adult male in breeding plumage.*—Differs from the winter plumage in being much more variegated, the whole of the back being spotted with white, the spots being arranged in pairs on the edges of the feathers, which are also tipped with a bar or twin spots of white; the whole of the head and neck streaked with white, and the brown streaks on the side of the face, fore neck, and chest very broad and distinct, the sides of the upper breast being brown, very much mottled with bars of white. Length, 236; culmen, 35; wing, 137; tail, 55; tarsus, 30.

"*Adult female in breeding plumage.*—Does not differ in color from the male, but is not quite so strongly marked. Length, 229; culmen, 38; wing, 142; tail, 50; tarsus, 33.

"*Young in autumn plumage.*—Scarcely differs from the winter plumage of the adult, but, when freshly molted, it has indistinct margins of ashy bronze on the feathers of the upper surface; the tail-bands are narrower on the center feathers, while the subterminal band is broader than in the adults.

"The change to the summer plumage is apparently effected by a distinct molt, which takes place while the bird is in its winter quarters, and in many instances, especially in the case of the males, the summer plumage is completely assumed before the species leaves for its breeding place." (*Sharpe.*)

Genus HETERACTITIS Stejneger, 1884.

Bill straight, longer than tarsus; back, rump, and tail-coverts uniform in color.

107. **HETERACTITIS BREVIPES** (Vieillot).

POLYNESIAN TATTLER.

Totanus brevipes VIEILLOT, Nouv. Dict. d'Hist. Nat. (1816), **6**, 410.
Heteractitis brevipes SHARPE, Cat. Birds Brit. Mus. (1896), **24**, 549; Hand-List (1899), **1**, 161; MCGREGOR and WORCESTER, Hand-List (1906), 26.

Bantayan (*McGregor*); Batan (*McGregor*); Basilan (*McGregor*); Bohol (*Everett, McGregor*); Cagayancillo (*McGregor*); Calayan (*McGregor*); Cebu (*Everett, McGregor*); Cuyo (*McGregor*); Leyte (*Everett*); Lubang (*McGregor*); Luzon (*Whitehead*); Malanipa (*Murray*); Mindanao (*Steere Exp., Goodfellow*); Negros (*Steere Exp., Bourns & Worcester*); Palawan (*Platen, White*); Siquijor (*Steere Exp., Bourns & Worcester*); Ticao (*McGregor*). Eastern Siberia; in winter China to Malay Archipelago and Australia.

"*Adult male in winter plumage.*—Above uniform ashy gray, with slightly indicated light ashy margins; scapulars like the back; lower back, rump, and upper tail-coverts purer gray than the back, with distinct whitish edges; the long upper tail-coverts with subterminal dusky bars; wing-coverts like back, with paler margins, greater series margined with white; primary-coverts and quills blackish, externally washed with ashy and fringed with white, inner secondaries ashy gray like the back, fringed with whitish; tail-feathers uniform ashy, with narrow whitish margins; head and neck like back; base of forehead and large supra-loral spot white, extending in a narrow streak above the eye; lores blackish: sides of face and ear-coverts white; the upper edge of the latter ashy gray; cheeks and under surface of body pure white, with a shade of ashy gray over the fore neck and chest; sides of breast and flanks also ashy gray, as well as the outer aspect of the thighs; under wing-coverts and axillars ashy gray, fringed with white at the ends; quills below ashy, lighter along the inner edged. 'Bill blackish gray, light brownish gray at base of lower mandible; feet light ocher-yellow, joints with a faint greenish tinge; iris dark brown.' (*Stejneger.*) Length, 223; wing, 162.

"*Adult female in winter plumage.*—Similar to the male. 'Bill black, grayish yellow at base; feet dirty chrome-yellow; claws black.' (*Everett.*) Length, 229; culmen, 37; wing, 157; tail, 71; tarsus, 32.

"*Young in winter plumage.*—Differs from the winter plumage of the adults in having the wing-coverts, scapulars, and back mottled with white dots on the outer webs of the feathers.

"The adult birds appear to molt into winter plumage after quitting their summer haunts for southern latitudes, arriving with worn and abraded feathers, but with the barred under surface of the breeding dress.

"*Adult male in breeding plumage.*—Resembles the winter plumage as regards the upper surface of the body being entirely ashy gray, but differs in the coloring of the lower surface, which is profusely spotted and barred. The throat is white, but the cheeks, lower throat, and fore neck are spotted and streaked with dusky blackish; the chest and breast, as well as the sides of the body and flanks, are also barred with dusky blackish, with a few bars on the under tail-coverts. 'Bill brown; feet yellow-ocher; iris dark brown.' (*H. Whitely.*) Length, 241; culmen, 38; wing, 155; tail, 66; tarsus, 29.

"*Adult female in breeding plumage.*—Does not differ from the male. Length, 241; culmen, 38; wing, 152; tail, 66; tarsus, 30." (*Sharpe.*)

This tattler occurs in great numbers during migration and may be found feeding on tide-flats.

Genus ACTITIS Illiger, 1811.

Bill straight; culmen, tarsus, and middle toe with claw subequal; back and rump uniform in color; secondaries nearly as long as primaries.

108. ACTITIS HYPOLEUCOS (Linnæus).

COMMON SANDPIPER.

Tringa hypoleucos LINNÆUS, Syst. Nat. ed. 10 (1758), **1**, 149.

Tringoides hypoleucus SHARPE, Cat. Birds Brit. Mus. (1896), **24**, 456; Hand-List (1899), **1**, 161; OATES, Cat. Birds' Eggs (1902), **2**, 45.

Actitis hypoleucus MCGREGOR and WORCESTER, Hand-List (1906), 26.

Agutaya (*McGregor*); Balabac (*Everett*); Bantayan (*McGregor*); Basilan (*Steere Exp.*); Batan (*McGregor*); Bohol (*Everett*); Cagayancillo (*McGregor*); Cagayan Sulu (*Guillemard, McGregor*); Calamianes (*Bourns & Worcester*); Calayan (*McGregor*); Camiguin S. (*Murray*); Cebu (*Everett, Bourns & Worcester, McGregor*); Cuyo (*McGregor*); Guimaras (*Steere Exp., Bourns & Worcester*); Lubang (*McGregor*); Luzon (*Jagor, Everett, Bourns & Worcester, Whitehead, McGregor*); Masbate (*Bourns & Worcester*); Mindanao (*Murray, Everett*); Mindoro (*Schmacker, McGregor, Porter*); Negros (*Steere Exp., Bourns & Worcester*); Palawan (*Everett, Platen, Whitehead, Steere Exp., Bourns & Worcester, White*); Panay (*Steere Exp., Bourns & Worcester*); Samar (*Bourns & Worcester*); Sibay (*McGregor & Worcester*); Siquijor (*Celestino*); Ticao (*McGregor*); Verde (*McGregor*). Africa, Europe, and northern Asia; south in winter from Indian Peninsula to Australia.

"*Adult male in breeding plumage.*—Above bronzy brown, the feathers with arrow-shaped central markings of black, which take the form of bars on scapulars and inner secondaries, wing-coverts bronzy brown like the back, but regularly barred with blackish; median and greater coverts with ashy fringes, the latter rather broadly tipped with white; alula, primary-coverts, and quills brown with an olive gloss; secondaries tipped with white and having a broad white base; inner secondaries like the back; lower back, rump, and upper tail-coverts like the back; lateral coverts barred with blackish and with white on outer web; tail-feathers bronzy brown, with irregular cross-bars of blackish brown; middle feathers narrowly, outer feathers broadly, tipped with white, penultimate feather barred with white on outer web, outermost feather almost entirely white with a little brown on inner web, which is barred with blackish; crown and neck bronzy brown, with narrow mesial shaft-lines of blackish brown, a narrow superciliary line of whitish, extending from base of bill; sides of face bronzy brown, with blackish shaft-lines to the feathers; fore part of cheeks and under surface pure white, with dusky streaks on the throat, these being a little longer on chest, the sides of latter and sides of upper breast brown; under wing-coverts white, mottled with blackish bases, especially distinct on edge of wing; axillars pure white; quills dusky below, white toward base of inner web. 'Bill dusky above, brownish gray beneath; feet grayish, tinged with green, claws black; iris brown.' (*Macgillivray.*) Length, 203; culmen, 28; wing, 104; tail, 51; tarsus, 24.

"*Adult female in breeding plumage.*—Similar to the male in color, but not quite so heavily marked, and the streaks on the fore neck and chest less pronounced. Length, 178; culmen, 28; wing, 109; tail, 61; tarsus, 22.

"*Adult in winter plumage.*—A little more bronzy olive than in summer, and uniform above, without the black central streaks and black spear-shaped spots which are characteristic of the summer dress; the streaks on the throat are also much narrower and not so distinct.

"*Young.*—Easily distinguished by the cross-bars of sandy or reddish buff and dusky brown, which give the upper surface a freckled appearance; throat uniform, with scarcely any indications of streaks on the lower part." (*Sharpe.*)

The common sandpiper is widely distributed and is often found along fresh-water streams as well as near the sea.

Genus TEREKIA Bonaparte, 1838.

Bill curved upward; tarsus longer than middle toe with claw and less than two-thirds of culmen; wings long, when folded extending to or beyond the end of tail.

109. **TEREKIA CINEREA** (Güldenstädt).

AVOCET SANDPIPER.

Scolopax cinerea GÜLDENSTÄDT, Novi Comm. Acad. Sci. Imp. Petrop. (1775), **19**, 473, pl. 19.

Terekia cinerea SHARPE, Cat. Birds Brit. Mus. (1896), **24**, 474: Hand-List (1899), **1**, 161; OATES, Cat. Birds' Eggs (1902), **2**, 47: McGREGOR and WORCESTER, Hand-List (1906), 26.

Bohol (*Everett*); Cebu (*McGregor*); Masbate (*Bourns & Worcester*); Negros (*Steere Exp., Bourns & Worcester*); Palawan (*Whitehead*). Northern Siberia, northeastern Europe; in winter Africa and Indian Peninsula to Australia.

"*Adult male in breeding plumage.*—Differs from the winter plumage in having black centers to feathers of upper surface; head streaked with blackish brown; a rufescent tint pervades the upper surface; lesser wing-coverts and scapulars almost entirely black, the latter forming a double band down the back; wing-coverts, secondaries, lower back, rump, and upper tail-coverts, mottled with dusky markings; below white; lower throat and fore neck streaked with blackish. 'Bill black, base of lower mandible yellowish green; feet olive-gray; iris dark brown.' (*Taczanowski.*) Length, 215; culmen, 51; wing, 136; tail, 56; tarsus, 29.

"The yellow base to the lower mandible appears to me to be a sign of immaturity and winter plumage, as it seems to disappear entirely in breeding birds.

"*Adult female in breeding plumage.*—Similar to the male, with less of the bronzy tint above; black streaks on upper surface and dusky streaks on throat less pronounced. Length, 241; culmen, 48; wing, 136; tail, 56; tarsus, 25.

"*Young male of the year.*—Similar to the adults, but with a much shorter bill, its base conspicuously yellow; mantle streaked with blackish; scapulars marked with black almost as much as in the adult bird; upper tail-coverts and tail barred with dusky and pale rufous; greater coverts black, forming a band across wing; head, neck, and under parts as in the adult winter plumage, the throat not being streaked with dusky. 'Bill blackish olive, yellowish olive at base of both mandibles; feet, including web, bright orange-yellow; iris blackish brown.' (*Stejneger.*)

"*Adult in winter plumage.*—General color above light ashy gray, with obsolete whitish edges to scapulars and wing-coverts, especially the greater series; lesser coverts distinctly black in the center; alula, primary-coverts, and quills blackish, outer primaries with white shafts, inner primaries ashy toward the ends, with a white fringe; secondaries broadly tipped with white, and white along the inner web; inner secondaries ashy gray like the back, with blackish shaft-lines; lower back, rump, and upper tail-coverts like the back, the latter freckled and edged with ashy white; tail-feathers ashy gray, whitish at base, mottled with ashy; head and neck ashy gray; forehead and eyebrow white, becoming fulvescent above ear-coverts; lores dusky ashy; sides of face whitish, streaked with ashy gray, the upper edge of ear-coverts uniform ashy; cheeks, throat, and under surface pure white; sides of neck and sides of upper breast ashy gray, the latter with a distinct dusky patch; axillars and under wing-coverts white; feathers along edge of wing ashy gray; quills grayish below. 'Bill dark brown, yellowish at base of lower mandible; feet and toes yellow; iris brown.' (*Oates.*)" (*Sharpe.*)

This curious sandpiper was met with in considerable numbers on the tide-flats near Minglanilla, Cebu, in November, 1906. At or near high water the species was found, in company with *Heteractitis*, resting among the roots of mangrove trees and at such times it was no uncommon occurrence to kill several specimens of each species at one shot. As the rocky flats became exposed these birds scattered to feed and became more difficult to approach. The bill of the female is much longer than that of the male, but the plumage is similar in the two sexes. In a male taken November 20, the bill was black, except the yellow base, legs bright orange-chrome, and nails black.

Genus GLOTTIS Koch, 1816.

Bill slightly curved upward; culmen decidedly shorter than tarsus: the latter about twice the middle toe without claw; rump white.

110. GLOTTIS NEBULARIUS (Gunnerus).

GREENSHANK.

Scolopax nebularius GUNNERUS, Leem. Lapp. Beschr. (1767), 251.
Glottis nebularius SHARPE, Cat. Birds Brit. Mus. (1896), **24**, 481; Hand-List (1899), **1**, 161; OATES, Cat. Birds' Eggs (1902), **2**, 47; McGREGOR and WORCESTER, Hand-List (1906), 26.

Bohol (*McGregor*); Cebu (*McGregor*); Luzon (*McGregor*); Mindanao (*Platen*); Mindoro (*McGregor*); Negros (*Steere Exp.*). Africa, northern Europe and northern Asia; in winter Indian Peninsula to Australia.

"*Adult in winter plumage.*—General color above ashy brown, mottled with whitish edges to the feathers, which are freckled and subterminally lined with darker brown, the shafts being also well marked; scapulars clearer ashy gray, with an interrupted subterminal line of blackish brown; lower back, rump, and upper tail-coverts pure white; exterior wing-coverts uniform blackish brown; median and greater covers lighter brown, fringed with white; alula, primary-coverts, and quills blackish, the latter fringed with white at the end of the inner webs; secondaries ashy brown, edged with white, innermost long secondaries spotted with black on the margins; tail white, center feathers crossed with regular but somewhat interrupted bars of brown, outer feathers with a few broken spots and bars of brown on outer webs; crown and hind neck grayish brown, the feathers edged with white, imparting a streaked appearance, more marked on the head; forehead, lores, and sides of face pure white; sides of neck and upper margin of ear-coverts narrowly streaked with ashy brown; entire under surface pure white; sides of upper breast irregularly freckled with brown; under wing-coverts white, with a subterminal bar of brown, or a central arrowhead line of the latter color; axillars white, with a few remains of brown spots; lower primary-coverts ashy, with whitish edgings; quills below ashy, the lateral markings of the secondaries indicated below. 'Bill and feet light slate-color; iris dark brown.' (*Ayres.*) Length, 330; culmen, 56; wing, 183; tail, 60; tarsus, 55.

"*Adult male in breeding plumage.*—Of a more ruddy brown than in the winter plumage and with black centers to feathers of upper surface; head and neck streaked with black; sides of face white, narrowly streaked with black; below white, lower throat, fore neck, and chest with numerous ovate spots of black; flanks with a few irregular bars of black; under wing-coverts and axillars white barred with black, bars on the latter somewhat interrupted; lower back, rump, and upper tail-coverts white, lateral coverts barred with black; two center tail-feathers ashy gray, slightly freckled with dusky, and notched with black on the margins;

remainder of tail-feathers white barred with blackish, the bars becoming more irregular on the lateral feathers, which have distinct bars only on the outer webs. 'Bill blackish brown, lighter brownish gray toward base, especially on lower jaw; feet yellowish gray, joints bluish.' (*Stejneger.*) Length, 305; culmen, 53; wing, 190; tail, 76; tarsus, 56.

"*Adult female.*—Similar to the male in color. 'Bill blackish brown, basal half lighter, on upper mandible with a bluish, on lower one with a reddish-gray tinge; feet dirty olive-gray, joints darker and more bluish gray.' (*Stejneger.*)

"*Young after first molt.*—Similar to the winter plumage of the adults but more tinged with rufous-brown and with the feathers spotted with whity brown on both webs; center tail-feathers white, distinctly barred across with black, chest also distinctly streaked with dusky; sides of breast spotted and mottled with dusky brown." (*Sharpe.*)

Genus RHYACOPHILUS Kaup, 1829.

Bill straight; culmen equal to middle toe without claw but much less than tarsus; rump white.

111. **RHYACOPHILUS GLAREOLA** (Linnæus).

WOOD SANDPIPER.

Tringa glareola Linnæus, Syst. Nat. ed. 10 (1758), **1**, 149.

Rhyacophilus glareola Sharpe, Cat. Birds Brit. Mus. (1896), **24**, 491; Hand-List (1899), **1**, 162; Oates, Cat. Birds' Eggs (1902), **2**, 48; McGregor and Worcester, Hand-List (1906), 27.

Basilan (*McGregor*); Bohol (*Everett*); Cagayan Sulu (*Mearns*); Calamianes (*Bourns & Worcester*); Calayan (*McGregor*); Cebu (*Bourns & Worcester, McGregor*); Guimaras (*Steere Exp.*); Lubang (*McGregor*); Luzon (*Jagor, Meyer, Everett, Whitehead*); Mindanao (*Steere Exp., Bourns & Worcester, Celestino*); Negros (*Steere Exp.*); Palawan (*Platen, Whitehead, Steere Exp., Bourns & Worcester, White*); Panay (*Steere Exp., Bourns & Worcester*); Siquijor (*Bourns & Worcester*); Ticao (*McGregor*). Africa, Europe, and northern Asia; in winter Indian Peninsula to Australia.

"*Adult male in winter plumage.*—Above bronzy brown, with light ashy bronze margins to the feathers, which are slightly spotted with white on both edges; scapulars like back, but with somewhat larger white spots; lower back and rump uniform brown, feathers of the latter edged with white; upper tail-coverts pure white, lateral ones with blackish shaft-streaks and irregular longitudinal markings; lesser wing-coverts uniform brown; median and greater coverts spotted with white on both webs and resembling the scapulars; alula, primary-coverts, and quills blackish brown, fringed with white at the ends; secondaries notched with white on both webs, with a barred appearance of blackish intermediary bands; center tail-feathers ashy brown, barred with blackish brown, and deeply notched with white; lateral feathers white, barred with blackish, these bars becoming irregular on lateral feathers and reduced to a few freckles on outermost ones; feathers of crown and hind neck almost uniform ashy brown, slightly mottled with darker brown centers; lores dusky, surmounted by a distinct white eyebrow; sides of face white, slightly streaked with dark brown; ear-coverts uniform dark brown along their upper edge; cheeks and throat white; sides of neck, lower throat, fore neck, and chest ashy, varied with shaft-lines of brown; remainder of under surface pure white; sides of upper breast ashy brown; lateral under tail-coverts with blackish shaft-streaks and a few frecklings of black; under wing-coverts white, mottled with blackish bases; axillars white, with a few irregular bars and freckles; lower primary-coverts and quills below dusky brown, with whitish spots on the edges of the inner secondaries. 'Basal half of bill olive-brown, terminal half black; legs and feet pale greenish; claws dark horn-color; iris brown.' (*Oates.*) Length, 216; culmen, 29; wing, 12; tail, 47; tarsus, 35.

"*Adult female.*—Similar to the male. 'Bill blackish, olive at the base of lower mandible; feet olive; iris very dark brown.' (*Butler.*) Length, 203; wing, 124; tail, 48; culmen, 28; tarsus, 38.

"*Adult male in summer plumage.*—More variegated than in winter, the back being uniform dark brown, with large notches of white on both webs, and having very distinct white edges to scapulars and inner wing-coverts; long upper tail-coverts barred with dusky blackish and resembling the center tail-feathers; head and neck streaked with white; sides of face, lower throat, and fore neck very distinctly and broadly streaked with blackish brown centers to the feathers; sides of body and under tail-coverts mottled with cross-bars of blackish brown; the axillars narrowly barred with blackish brown. 'Bill blackish olive, below at base lighter brownish olive; feet light grayish olive; iris dark brown.' (*Stejneger.*) Length, 178; culmen, 33; wing, 124; tail, 47; tarsus, 35.

"*Young after first molt.*—Differs from the adults in being closely spotted on the upper surface, but the spots more or less rufescent; lower throat and chest ashy as in the winter plumage of the adults, but the dusky brown stripes very distinct and invading sides of body; axillars pure white, or with the merest trace of brown frecklings. 'Bill dusky brown, inclining to greenish olive toward base; feet greenish olive, iris blackish brown.' (*Butler.*)

"In the breeding season the white spots on the upper surface become much worn and abraded, so that the general appearance of the back is very uniform; the mottling on the fore neck and chest becomes very distinct by reason of the abrasion of the white margins of the feathers, and the axillars are completely barred across with brown." (*Sharpe.*)

Subfamily SCOLOPACINÆ.

This subfamily contains all of the snipes and a number of small sandpipers; the toes are without webs, otherwise many of the genera might easily fall in the subfamily *Totaninæ*.

Genera.

a^1. Culmen equal to or less than tarsus.
  b^1. No hind toe .... **Calidris** (p. 132)
  b^2. Hind toe present.
    c^1. Tarsus about equal to middle toe with claw........ **Pisobia** (p. 133)
    c^2. Tarsus longer than middle toe with claw........ **Heteropygia** (p. 138)
a^2. Culmen longer than tarsus.
  b^1. Eye not placed far back in the head; ear opening well behind posterior margin of eye.
    c^1. Larger; wing more than 150 mm.; culmen more than 40 mm. **Tringa** (p. 141)
    c^2. Smaller; wing less than 130 mm.; culmen less than 40 mm.
      d^1. Bill slender, upper mandible narrow, its tip slightly expanded; upper tail-coverts white .... **Erolia** (p. 139)
      d^2. Bill broad and flat; end of upper mandible decidedly decurved, its tip pointed; upper tail-coverts not white........ **Limicola** (p. 142)
  b^2. Eye placed well back in head; ear opening just below hinder margin of eye.
    c^1. Tarsus less than middle toe with claw; culmen nearly twice the length of tarsus; culmen straight .... **Gallinago** (p. 143)
    c^2. Tarsus more than middle toe with claw and but little less than culmen; culmen decidedly decurved at its tip........ **Rostratula** (p. 147)

Genus CALIDRIS Illiger, 1811.

Bill straight, slightly expanded at tip, culmen about equal to tarsus and longer than middle toe with claw; hind toe wanting.

112. CALIDRIS LEUCOPHÆA (Pallas).

SANDERLING.

Tringa leucophæa Pallas, in Vroeg's Catal. (1764), 32.
Trynga alba Pallas, Vroeg's Catal. Adumbr. (1764), 7; Sherborn, Smiths. Misc. Colls. (1905), **47**, 341.
Tringa arenaria Linnæus, Syst. Nat. ed. 12 (1766), **1**, 251.
Calidris arenaria Oates, Bds. Brit. Burmah (1885), **2**, 398; Cat. Birds' Eggs (1902), **2**, 52; Sharpe, Cat. Birds Brit. Mus. (1896), **24**, 526; Hand-List (1899), **1**, 163.
Calidris alba Richmond, Smiths. Misc. Colls. (1905), **47**, 347.
Calidris abba McGregor and Worcester, Hand-List (1906), 27 (error).
Calidris leucophæa A. O. U. Committee, Auk (1908), **25**, 367.

Luzon (*Whitehead, McGregor*). Arctic regions; in winter to Africa, South America, Marshall Islands, Indian Peninsula to Australia.

"*Winter plumage.*—Forehead, face, and the whole lower plumage pure white; crown, nape, hind neck, back, and scapulars pale ashy, the crown with well-defined black shaft-streaks, the other parts with narrower and less distinct shaft-streaks; wing-coverts blackish, the median and greater coverts broadly edged with white; primaries dark brown, blacker on the tips and outer webs, the shafts white, a portion of the outer webs of the later ones white; secondaries black, whitish at base and tipped with white; tertiaries rather broadly edged with white; tail pale brown on the outer webs, more or less white on the inner. 'Iris dark brown; bill, legs, feet, and claws black.' (*Armstrong.*) Length, 190; tail, 51; wing, 122; tarsus, 25; bill from gape, 28." (*Oates.*)

"*Male in summer plumage.*—Differs from the winter plumage in being mottled and not uniform, the upper surface being cinnamon-rufous, mottled with black centers to the feathers, which have hoary whitish or ashy edges; the inner secondaries cinnamon-rufous like the scapulars and back; sides of lower back and lateral upper tail-coverts pure white; sides of face, throat, and sides of breast deep cinnamon-rufous, mottled with black centers to the feathers; rest of under surface white. Length, 165; culmen, 23; wing, 124; tail, 48; tarsus, 23; middle toe with claw, 19.

"*Female in summer plumage.*—Similar to the male but has not quite so much bright rufous in the plumage, the fore neck being barred with blackish. Length, 203; culmen, 27; wing, 124; tail, 49; tarsus, 25; middle toe with claw, 20.

"*Young.*—Somewhat similar to the winter plumage of the adult but not so uniform above; entire under surface pure white, as also the forehead and sides of face; center of forehead mottled with blackish to base of bill; a dusky streak between bill and eye, as well as along upper edge of ear-coverts; on sides of breast and on fore neck a tinge of vinous-buff or vinous; sides of upper breast and of neck distinctly spotted with black; upper surface black, mottled with spots of white or sandy whitish, these spots being mostly terminal on back and scapulars; lower back, rump, and upper tail-coverts ashy with a sandy buff tip and a subterminal spot of black, and fringed at the tips with a narrow blackish line, giving the rump the appearance of being lined transversely with black; feathers of head blackish, varied with brown or whitish edges, and forming a more or less distinct cap, which is separated from mantle by the light color of hind neck; mantle ashy streaked with dusky brown; wings much as in the winter plumage of the adult but the greater and median coverts, and inner secondaries mottled like the back." (*Sharpe.*)

A male taken near Manila in March measures: Wing, 118; tail, 52; exposed culmen, 24; tarsus, 25; middle toe with claw, 19.

Genus PISOBIA Billberg, 1828.

Bill slender and straight, a little longer than tarsus; hind toe small and elevated; small sandpipers about 127 mm. in length.

Species.

a^1. Outer tail-feathers pale smoky or ashy brown.
  b^1. Feet blackish; middle toe with claw not over 19 mm.
    c^1. Tarsus slightly more than 20 mm.; sides of face and throat slightly rufescent in summer; rufous color predominating over the black above. **minuta** (p. 134)
    c^2. Tarsus shorter, about 19 mm.; entire throat and chest bright rufous in summer .... **ruficollis** (p. 135)
  b^2. Feet olive-brown; middle toe with claw about 23 mm.... **damacensis** (p. 136)
a^2. Outer tail-feathers pure white........ **temmincki** (p. 137)

113. PISOBIA MINUTA (Leisler).

LITTLE STINT.

Tringa minuta LEISLER, in Bechst. Naturg. Deutschl. (1812), **1**, 74; BLANFORD, Fauna Brit. Ind. Bds. (1898), **4**, 273, fig. 63 (head).

Limonites minuta SHARPE, Cat. Birds Brit. Mus. (1896), **24**, 538; Hand-List (1899), **1**, 163; OATES, Cat. Birds' Eggs (1902), **2**, 52; McGREGOR and WORCESTER, Hand-List (1906), 27.

Mindanao (*Mearns*). Northern Europe and northern Asia to Lake Baikal; in winter Africa, Indian Peninsula, and Ceylon.

"*Adult in winter plumage.*—General color above ashy brown, slightly darker along the shafts; lower back, rump, and upper tail-coverts blackish brown; sides of lower back and lateral upper tail-coverts pure white; tail-feathers light smoky brown, the long central ones dark brown, with a very narrow whitish fringe; wing-coverts rather darker brown than the back, with ashy fringes to the median series; greater coverts tipped with white, forming a wing-band; alula and primary-coverts blackish brown, edged with white at tips; quills dark brown, with white shafts, a few of the inner primaries also edged with white near the base; secondaries dark brown, fringed with white at the tips, bases of inner webs white, forming a continuous band with the one on greater coverts; long inner secondaries light brown like scapulars, the shafts blackish brown; crown brown like the back, the feathers with darker brown centers; forehead and supraloral region pure white; lores dusky brown; ear-coverts and feathers below eye light brown, with narrow streaks of dark brown; above ear-coverts a streak of white lined with brown, forming an indistinct eyebrow; cheeks, throat, and under surface pure white slightly ashy on throat and fore neck; sides of neck and upper breast brown, with slightly darker centers or shaft-streaks; under wing-coverts and axillars white; coverts round edge of wing dark brown, with white margins; lower primary-coverts dull ashy brown, forming an inconspicuous wing-patch. 'Bill, feet, and claw black; iris hazel.' (*Seebohm.*) Length, 132; culmen, 18; wing, 96; tail, 41; tarsus, 20; middle toe with claw, 18.

"*Adult male in summer plumage.*—Much more rufous than in winter;

feathers of upper surface sandy rufous; black centers and white margins to many of the scapulars and feathers of the back; feathers of head rufous, with black centers; neck rufous, streaked with dusky blackish, these streaks being smaller and less distinct on sides of face, which are also rufous; a slight indication of a whitish eyebrow; under surface white, throat tinged with rufous, chest pervaded with ashy, and throat, fore neck, and sides of breast mottled with dusky spots in the centers of the feathers. Lenth, 152; culmen, 19; wing, 96; tail, 36; tarsus, 20.

"*Adult female in summer plumage.*—Similar to the male, but somewhat less distinctly spotted on the breast. Length, 152; culmen, 18; wing, 98; tail, 37; tarsus, 20.

"*Young.*—Blackish above, with rufous edgings to the feathers, and thus somewhat resembling the summer plumage of the adults, but they may always be distinguished by the more numerous white edgings to the dorsal and scapular feathers, by the ashy color of the hind neck, by the absence of spots on the fore neck and chest, both of which are tinged with isabelline-buff.

"*Nestling.*—Mottled with rufous and black down, the tips of which are silvery white or sandy buff; the hind neck sandy buff, forming a collar; the crown black, slightly mottled with rufous and dotted with silvery white, the black extending in a line on the forehead, which is buff, continued into a somewhat broad eyebrow; a black loral line and a black spot on each side of the hinder crown as well as on the ear-coverts; under surface of body whitish, with a tinge of sandy buff on the lower throat." (*Sharpe.*)

114. **PISOBIA RUFICOLLIS** (Pallas).

ASIATIC LITTLE STINT.

Trynga ruficollis PALLAS, Reise Russ. Reichs (1776), 3, 700.
Limonites ruficollis SHARPE, Cat. Birds Brit. Mus. (1896), 24, 545; Hand-List (1899), 1, 163; MCGREGOR and WORCESTER, Hand-List (1906), 27.

Ti-út ti-út, Bantayan.

Bantayan (*McGregor*); Bohol (*Everett, McGregor*); Calayan (*McGregor*); Cebu (*Bourns & Worcester, McGregor*); Cuyo (*McGregor*); Luzon (*Meyer, Whitehead*); Mindanao (*Mearns, Celestino*); Negros (*Bourns & Worcester*); Palawan (*Platen, Whitehead, Steere Exp.*). Eastern Siberia, Japan, and Korea; in winter Burmese countries to Australia.

"*Adult in winter plumage.*—Resembles the winter plumage of *L. minuta*, but distinguished by the whiter fore neck and chest, and by the slightly shorter tarsus. Length, 145; culmen, 18; wing, 96; tail, 42; tarsus, 19; middle toe with claw, 18.

"*Adult male in summer plumage.*—Much more mottled on the upper surface than in winter, the centers of the feathers being blackish, and upper parts overspread with a brighter chestnut color, with which the feathers are broadly margined; crown blackish, washed with rufous and mottled with gray margins; forehead and eyebrow shaded with bright rufous, this color occupying entire sides of face, sides of neck, throat, and chest; chin whitish. 'Bill and feet black; iris nearly black.' (*Dybowski.*) Length, 135; culmen, 18; wing, 98; tail, 43; tarsus, 19; middle toe with claw, 19.

"*Adult female in summer plumage.*—Does not differ materially from the male, but is perhaps scarcely so rufous, and retains a little more of the hoary gray of the winter plumage. 'Iris brown.' (*Everett.*) Length, 127; culmen, 18; wing, 99; tail, 43; tarsus, 19; middle toe with claw, 18.

"*Young.*—Scarcely distinguishable from the young of *L. minuta.*" (*Sharpe.*)

"Frequently seen in large flocks during the winter months." (*Bourns and Worcester MS.*)

Of the stints that visit the Philippine Islands in winter the Asiatic little stint undoubtedly occurs in greater numbers than all the others taken together; it is the only abundant species and is usually found in large or small flocks on tide-flats.

115. **PISOBIA DAMACENSIS** (Horsfield).

LONG-TOED STINT.

Totanus damacensis Horsfield, Trans. Linn. Soc. (1821), **13**, 192.

Limonites damacensis Sharpe, Cat. Birds Brit. Mus. (1896), **24**, 553; Hand-List (1899), **1**, 163; McGregor and Worcester, Hand-List (1906), 28.

Pisobia damacensis A. O. U. Committee, Auk (1908), **35**, 367.

Basilan (*McGregor*); Luzon (*Heriot*); Mindanao (*Mearns*); Palawan (*Platen, Steere Exp., Bourns & Worcester*). Japan, eastern Siberia, islands of Bering Sea, China to northeastern Bengal; in winter Burma to Australia.

"*Adult male in winter plumage.*—Similar to the winter plumage of *L. minuta* and *L. ruficollis*, but darker than either of them, with the head and neck much more thickly spotted with black, and the lower throat and fore neck very distinctly streaked or mottled with brown. The species can of course be distinguished from both of the above species by its long toes.

"*Adult male in summer plumage.*—Almost exactly similar to *L. minuta*, but easily distinguished by the length of the middle toe and the color of the legs. Length, 132; culmen, 178; wing, 86; tail, 36; tarsus, 20; middle toe with claw, 23.

"*Adult female.*—Similar to the male in plumage. 'Bill blackish, olive-brown at base of lower jaw; feet grayish yellow, with joints darker olive; iris dark brown.' (*Stejneger.*)" (*Sharpe.*)

116. PISOBIA TEMMINCKI (Leisler).

TEMMINCK'S STINT.

Tringa temminckii LEISLER, in Bechst. Naturg. Deutschl. (1812), **2**, 78.
Limonites temmincki SHARPE, Cat. Birds Brit. Mus. (1896), **24**, 555; Hand-List (1899), **1**, 163; OATES, Cat. Birds' Eggs (1902), **2**, 53; MCGREGOR and WORCESTER, Hand-List (1906), 28.

Negros (*Steere Exp.*). Northern Europe and Asia, northern and northeastern Africa; in winter Indian Peninsula and China.

"*Adult in winter plumage.*—Above ashy gray, slightly varied with dusky shaft-streaks; scapulars bronzy brown like inner secondaries; lower back and rump brown, with a subterminal shade of darker brown; upper tail-coverts also dark brown, with longitudinal shaft-streaks of darker brown; wing-coverts brown, with a slight bronzy gloss, shaft-lines darker, and slight indications of paler edges; greater coverts tipped with white, forming a cross-band on the wing; alula, primary-coverts, and quills blackish brown; shafts of the primaries pale whity brown, that of the first outer primary white; alula white with a brown center; all the primaries white at the extreme base; secondaries brown, white at base of inner web, and fringed with white at the ends; long inner secondaries bronzy brown with dusky centers; middle tail-feathers dusky brown, the remainder ashy brown, with white in the center, increasing in extent toward outer feathers, two external ones entirely white; crown ashy brown like back; lores dull brown surmounted by a streak of white, hardly joined to a second streak above the ear-coverts, which forms an indistinct eyebrow; eyelid white; sides of face and ear-coverts ashy brown, streaked with dusky brown; cheeks and throat white, with a few dusky streaks on cheeks and lower throat; fore neck and upper breast light ashy brown; lower breast, abdomen, sides of body, and flanks pure white; thighs brown, white internally; under tail-coverts white; under wing-coverts and axillars white; coverts round the bend of wing dusky brown with whitish edges; lower primary-coverts brown, forming a patch; quills below ashy brown, somewhat lighter along the inner edge. Length, 140; culmen, 15; wing, 96; tail, 46; tarsus, 18; middle toe with claw, 18.

"*Adult male in breeding plumage.*—Only differs from the winter plumage in being more mottled above, the feathers having black centers, and being tinged with rufous, especially on the edges of the feathers; lower throat and chest have some distinct shaft-lines. 'Bill olive-black, lighter olive brownish at base, especially on lower mandible; feet olive-yellow, joints more dusky; iris dark brown.' (*Stejneger.*) Length, 135; culmen, 19; wing, 94; tail, 46; tarsus, 16; middle toe with claw, 18.

"*Adult female in breeding plumage.*—Similar to the male, and apparently quite as much mottled. Length, 132; culmen, 20; wing, 99; tail, 47; tarsus, 16; middle toe with claw, 18.

"*Young birds.*—These can always be distinguished from the adults in summer or winter plumage by the narrow sandy buff margins to the feathers of the upper surface, and by the ashy fulvous tinge on the fore neck, which is devoid of the dusky streaks seen in the adults.

"*Nestling.*—Covered with golden buff down, spotted with black, and spangled with silvery tips to the down; the black forms a line down the center of back; under surface dull white, tinged with buff on the fore neck." (*Sharpe.*)

Genus HETEROPYGIA Coues, 1861.

Bill straight, very slightly expanded at tip; culmen less than tarsus and equal to middle toe without claw.

117. HETEROPYGIA AURITA (Latham).

SHARP-TAILED SANDPIPER.

Tringa aurita LATHAM, Ind. Orn. Suppl. (1801), 66.

Totanus acuminatus HORSFIELD, Trans. Linn. Soc. (1821), **13**, 192.

Heteropygia acuminata SHARPE, Cat. Birds Brit. Mus. (1896), **24**, 566; Hand-List (1899), **1**, 163; MCGREGOR and WORCESTER, Hand-List (1906), 28.

Pisobia aurita A. O. U. COMMITTEE, Auk (1908), **25**, 366.

Batan N. (*McGregor*); Luzon (*Celestino*); Mindanao (*Everett*). Alaska, eastern Siberia, and China, south in winter to Australia and New Zealand.

"*Adult male in breeding plumage.*—General color above sandy rufous, streaked with black down the center of the feathers, these black centers being very much more distinct on the scapulars and inner secondaries, where the rufous margins are very bright; lower back, rump, and upper tail-coverts dusky black, the lateral tail-coverts sandy rufous barred with black; lesser wing-coverts dull brown; median coverts brown; with blackish centers and ashy fulvous margins; greater coverts uniform dusky brown with white tips; alula uniform brown; primary-coverts blackish, the inner ones tipped with white; quills brown, dusky blackish at tips and along outer webs, the shafts for the most part white, brown toward the bases; secondaries brown, with a little white at base of inner webs, and narrowly fringed with white near tips, inner ones a little more broadly; tail ashy brown fringed with white round the end, the center feathers blackish and extended a little beyond the ends of the others; crown bright sandy rufous minutely streaked with black; lores and a distinct eyebrow white, with narrow streaks of blackish; sides of face white, with dusky streaks; ear-coverts tinged with rufous; under surface white; chin unspotted; throat, fore neck, and chest tinged with sandy rufous, and minutely spotted with dusky black, which sometimes takes the form of longitudinal streaks or arrowhead bars, the latter form of markings being especially distinct on the sides of body; breast and abdomen white, the latter with a few linear streaks of black; under wing-coverts and axillars white, bend of wing mottled with blackish bases; lower primary-coverts dusky with whitish tips; quills dusky below. 'Bill blackish brown, browner or reddish brown at angle of mouth, clear gray at base of lower mandible; feet yellowish ocher-color, tinged with olive, darker on the joints; iris dark brown.' (*Dybowski.*) Length, 178; culmen, 28; wing, 137; tail, 53; tarsus, 30.

"*Adult female.*—Similar to the male.

"*Adult in winter plumage.*—Much browner than the summer plumage and without any rufous except, perhaps, a slight tinge on the head; under surface white; lower throat and chest ashy fulvous with a few narrow streaks and lines of blackish; flanks slightly washed with brown; on under tail-coverts a few narrow mesial shaft-streaks of blackish.

"*Young birds.*—Much more rufous on upper surface even than the breeding plumage; back much blacker than in any other age of the bird, intermixed with a great deal of rufous, and distinguished by the conspicuous whitish edgings to the dorsal feathers, scapulars, and inner secondaries; wing-coverts with broad margins of sandy rufous, and longitudinal black centers; chin white; breast and abdomen white, sometimes with a slight tinge of buff; the lower throat, fore neck, and sides of breast sandy rufous; fore neck and chest more ashy and uniform, so that the black shaft-streaks are confined to the lower throat; those on the sides of neck and sides of breast being a little broader." (*Sharpe.*)

A rare winter visitant to the Philippine Islands.

Genus EROLIA Vieillot, 1816.

Bill long and slender, very slightly decurved and slightly expanded at tip; culmen greater than tarsus, the latter longer than middle toe with claw.

118. **EROLIA FERRUGINEA** (Brünnich).

CURLEW SANDPIPER.

Tringa ferruginea Brünnich, Orn. Bor. (1764), 53.

Scolopax subarquata Güldenstädt, Nov. Comm. Petrop. (1774), **19**, 471.

Ancylochilus subarquatus Sharpe, Cat. Birds Brit. Mus. (1896), **24**, 586; Hand-List (1899), **1**, 164; McGregor and Worcester, Hand-List (1906), 28.

Tringa subarquata Blanford, Fauna Brit. Ind. Bds. (1898), **4**, 278, fig. 64 (head).

Erolia ferruginea A. O. U. Committee, Auk (1903), **20**, 337.

Cebu (*Bourns & Worcester, McGregor*); Luzon (*Whitehead, Celestino*); Negros (*Bourns & Worcester*). Northern Siberia, south in winter to Africa, Indian Peninsula, and Australia.

"*Adult male in breeding plumage.*—Above deep bay or dark cinnamon-rufous; varied with whitish edges to feathers, which are mottled with black centers, taking the form of stripes on head and back, and of cross-bars on scapulars; lower back dull ashy brown, with whitish edges; sides of lower back, rump, and upper tail-coverts white, the latter tinged with rufous, and showing a few black bars; wing-coverts brown, with whitish edgings, greater series tipped with white, forming a wing-bar; some of the coverts rufous like the back, and some of the inner secondaries also rufous on their edges; primary-coverts and quills darker brown, the latter with white tips, primaries dark brown with white shafts; secondaries fringed with white, more broadly on the shorter ones, which are white at base of inner webs; tail-feathers ashy brown, with white fringes and white shafts; head like the back, but showing less distinct blackish centers to the feathers; hind neck distinctly hoary, owing to the gray edgings of feathers; sides of face and under surface rich vinous-chestnut; with more or less distinct remains of hoary margins; vent and under tail-coverts white, the latter tinged with rufous, and having a few black bars; sides of body and flanks pure white, the latter with a few black bars; under wing-coverts and axillars pure white; lower primary-coverts and upper surface of quills light ashy. Bill and feet black; iris hazel. Length, 188; culmen, 34; wing, 135; tail, 48; tarsus, 29; middle toe with claw, 25.

"*Adult female in summer plumage.*—Like the male but not so richly colored, tint of the under surface duller chestnut, and not so vinous. Length, 178; culmen, 35; wing, 124; tail, 46; tarsus, 29; middle toe with claw, 25.

"*Adult in winter plumage.*—Ashy brown above, slightly mottled with darker centers to the feathers; wing-coverts like the back; quills as in the summer plumage; rump and upper tail-coverts pure white; tail-feathers ashy brown, fringed with white, with white shafts, and a sub-terminal bar of dusky blackish, the inner webs having a good deal of white at the base; lores dusky, with a supra-loral streak of white; under surface of body pure white, with tiny lines of dusky brown on the sides of face, sides of neck, lower throat, and fore neck.

"*Young in first autumn plumage.*—Similar in general color to the winter plumage of the adult, and distinguished by the absence of rufous color in the plumage of the upper surface; on the under surface the streaks on the fore neck are almost obsolete, and a fulvescent shade overspreads fore neck and chest, in some specimens even extending to the breast itself. On the upper surface it is very similar to the winter plumage of the adult, but has always more distinct pale edgings to the feathers, these being gradually fulvescent, while the mantle is decidedly darker, being blackish, with pale margins to the feathers." (*Sharpe.*)

So far as known this species is a rare winter visitant to the Philippine Islands.

Genus TRINGA Linnæus, 1758.

Bill straight, culmen longer than tarsus, the latter exceeding middle toe with claw; wing long and pointed, when folded reaching the tip of tail, the latter nearly square. *Pisobia* is somewhat similar to this genus but has a much shorter bill and the species are much smaller.

119. **TRINGA CRASSIROSTRIS** Temminck and Schlegel.

ASIATIC KNOT.

Tringa crassirostris TEMMINCK and SCHLEGEL, Fauna Japonica (1847), 107, pl. 64; SHARPE, Cat. Birds Brit. Mus. (1896), **24**, 600; Hand-List (1899), **1**, 164; BLANFORD, Fauna Brit. Ind. Bds. (1898), **4**, 277; MCGREGOR and WORCESTER, Hand-List (1906), 28.

Mindanao? (*Mearns*); Negros (*Steere, Bourns & Worcester*). Eastern Siberia and Japan; in winter China to Australia and western Indian Peninsula.

"*Adult in winter plumage.*—Similar to the winter plumage of *T. canutus*, being ashy gray above and white below, but easily distinguished by the longer bill and pure white upper tail-coverts; the dusky spots on chest and sides of body smaller and much more distinct.

"*Young.*—Similar to the adult winter plumage but blacker, with conspicuous white margins to the feathers of the upper surface; rump and upper tail-coverts spotted with black, but not barred with dusky as in *T. canutus;* head like the back, black with white edges to the feathers, but scarcely any trace of a white eyebrow, the lores and sides of face being thickly spotted with black; throat white, unspotted; lower throat and fore neck light brown, mottled with black spots; upper breast and sides of body also plentifully spotted with black, the spots on the sides of the body being large and often arrow-shaped; axillars white, with marblings of pale ashy gray.

"*Adult male in breeding plumage.*—Does not differ from the winter plumage to the same extent as in *T. canutus;* upper surface only slightly suffused with rufous; scapulars and inner secondaries more or less bright chestnut with black subterminal bars; under surface white; throat thickly streaked and fore neck so closely barred as to become almost black, these black bars extending on to breast and along the sides of body; the under tail-coverts spotted with black. 'Bill brown: feet gray; iris dark brown.' (*Taczanowski.*) Length, 267; culmen, 41; wing, 175; tail, 63; tarsus, 33.

"*Adult female in breeding plumage.*—Similar to the male, but with less rufous. Length, 267; culmen, 43; wing, 190; tail, 67; tarsus, 33." (*Sharpe.*)

"*Coloration in winter.*—Upper parts light brownish gray, with black shaft-stripes which are broadest on the crown; sides of head and neck whitish, with dark streaks, supercilia and cheeks paler; wing-coverts with pale edges, greater coverts with white tips; alula, primary-coverts, and primaries blackish brown; secondaries brownish gray like back, but with white borders outside and at the end; lower back and rump dark brown, with white edges to the feathers; upper tail-coverts the same, but the white borders are much wider, the white sometimes occupying the greater part or the whole of the feathers; tail ashy brown; lower plumage white, fore neck and upper breast streaked or spotted with dark brown.

"In summer the plumage is blackish above, with whitish edges to the feathers, the scapulars with large chestnut spots; upper and lower tail-coverts white, with dark brown spots and bars; chin, throat, breast, and flanks so thickly spotted as to be almost covered in the middle of the breast with blackish brown; there is no rufous on the lower plumage." (*Blanford.*)

"Seen in small flocks along seashore in winter." (*Bourns and Worcester MS.*)

I have identified as of this species, a sandpiper collected by Major Edgar A. Mearns. The field tag gives no locality but I believe the specimen came from Mindanao. This and many other species of migratory shore-birds will doubtless be found in considerable numbers when more attention is paid to collecting them.

Genus LIMICOLA Koch, 1816.

Bill rather long and, except at base, flattened; upper mandible slightly decurved at tip and decidedly longer than lower mandible; exposed culmen greater than tarsus, the latter slightly longer than middle toe with claw.

120. **LIMICOLA PLATYRHYNCHA** (Temminck).

BROAD-BILLED SANDPIPER.

Tringa platyrhyncha TEMMINCK, Man. d' Orn. (1815), 398.
Limicola platyrhyncha SHARPE, Cat. Birds Brit. Mus. (1896), 24, 612; Hand-List (1899), 1, 165; OATES, Cat. Birds' Eggs (1902), 2, 59; McGREGOR and WORCESTER, Hand-List (1906), 29.

Bohol (*Everett*); Cebu (*McGregor*); Cuyo (*McGregor*); Negros (*Steere Exp.*); Palawan (*Platen*). Northern Europe and Siberia, Mediterranean and Red Seas; in winter China to Indian Peninsula and Moluccas.

"*Adult male in winter plumage.*—Above light ashy gray, somewhat paler on the edges of the feathers, which have dusky brown centers; lower back, rump, and upper tail-coverts blackish, with slight remains of sandy-buff fringes; sides of rump and lateral upper tail-coverts white; wing-coverts rather darker than the back, marginal ones dark brown; median series blackish in the center with hoary white margins; greater series dusky blackish edged with hoary gray, inclined to white at the ends, and forming a narrow band across wing; alula and primary-coverts black tipped with white, the latter broadly; quills black, paler brown on inner webs of primaries, excepting at tips, which are black; secondaries merely fringed with white near the ends, and with a little white towards base of inner web; inner secondaries ashy like back; shafts of all the quills white or whity-brown; middle tail-feathers blackish like upper tail-coverts, the others ashy brown with white shafts and white fringes; crown like the back; lores dusky, surmounted by a broad white streak, which is continued into a narrow eyebrow; sides of face white, with only a few tiny streaks of dusky brown; ear-coverts uniform dusky brown; under surface white, with a few streaks of dusky brown on lower throat and sides of breast; under wing-coverts and axillars white, the marginal coverts mottled with dusky bases, lower primary-coverts ashy. Bill dusky black; legs and feet slaty black; iris dark brown. Length, 165; culmen, 33; wing, 104; tail, 41; tarsus, 20.

"*Adult male in breeding plumage.*—Above black, slightly varied with rufous edgings to the feathers, some of those of mantle, scapulars, inner greater coverts, and inner secondaries having sandy-buff margins, the black forming large subterminal spots; crown black, with a sandy-buff lateral stripe; lores black; sides of face rufescent, thickly spotted with dusky black like sides of neck; ear-coverts rufous, and surmounted by a pale buff eyebrow, which becomes lighter above the lores; chin and under surface of body white; throat, fore neck, and chest thickly spotted with dusky blackish, the spots on the fore neck and chest somewhat arrow-shaped, as they are also along the sides of body, all these parts slightly tinged with rufous; lateral upper tail-coverts barred with black; tail-feathers as in the winter plumage, but with a more extensive area on the inner webs. Length, 165; culmen, 30; wing, 105; tail, 38; tarsus, 20.

"*Adult female in breeding plumage.*—Similar to the male, but not quite so plentifully spotted underneath.

"*Young birds.*—Very similar to the summer plumage of the adults, being rufous above, mottled with black centers to the feathers, and having very broad whitish margins; center of crown black; outer tail-feathers with a great deal of white on inner webs, confining the ashy gray to a broad marginal line; fore neck slightly tinged with buff, as also the sides of the upper breast, these parts being very scantily streaked with brown. During the first winter the pale edges become worn off, so that the general aspect of the upper surface is black.

"The summer plumage is gained by a darkening of the center of the feathers of the upper surface, which become gradually blacker; the head becomes blackish, and the streaks on the breast much more emphasized." (*Sharpe.*)

Genus GALLINAGO Koch, 1816.

Bill slender and straight; tip of upper mandible slightly thickened, pitted and with a median groove; ears almost directly underneath eyes; tarsus about two-thirds of culmen.

Species.

a^1. Tail-feathers twenty or more, the outer ones stiffened and very narrow; dark bars on axillars wider than the white bars.
  b^1. Tail shorter, about 48 mm.; outer feathers narrower............ **stenura** (p. 144)
  b^2. Tail longer, about 53 mm.; outer feathers wider..................... **megala** (p. 145)
a^2. Tail-feathers usually fourteen in number, neither excessively stiff nor narrow; dark bars on axillars narrow or obsolete.............................. **gallinago** (p. 146)

121. GALLINAGO STENURA (Bonaparte).

PINTAIL SNIPE.

Scolopax stenura BONAPARTE, ex Kuhl MS. Ann. Stor. Nat. Bolonga (1830), 4, 335.

Gallinago stenura SHARPE, Cat. Birds Brit. Mus. (1896), 24, 619; Hand-List (1899), 1, 165; MCGREGOR and WORCESTER, Hand-List (1906), 29.

Calayan (*McGregor*); Mindanao (*Murray*); Palawan (*White*). Eastern Siberia to the Yenesei; in winter China to Malay Peninsula.

"*Adult male in breeding plumage.*—Above blackish, striped and mottled with sandy isabelline; streaks on the sides of back and scapulars very broad; upper surface interspersed with rufous spots, but general color of the light markings sandy buff, especially on hind neck; wing-coverts dark brown, marginal series almost uniform, the rest barred with rufous or sandy buff, with paler tips, the rufous and black bars very distinct on the greater coverts, where they are regularly indicated; alula and primary-coverts blackish, with narrow white tip; quills blackish, the first primary browner on outer web, which is narrowly fringed with white; secondaries (outermost of which do not exceed primary-coverts in length) narrowly fringed with white at tip, inner ones barred with rufous and blackish, mostly on outer web; innermost long secondaries barred across, especially near the ends; tail-feathers blackish brown, ten central ones with a broad band of pale chestnut, followed by a subterminal bar of blackish brown, before a pale rufescent tip; a second rufous band, considerably broken up, a little beyond the middle of the feather; eight outer feathers on each side becoming narrower and narrower, till the outermost has scarcely any web at all; these wire-like feathers with white tips, with an indication of a blackish subterminal bar; crown black, mottled with rufous spots and having a mesial streak of sandy isabelline; a loral line of black, surmounted by a supra-loral patch of sandy isabelline continued into a narrow eyebrow; sides of face and ear-coverts isabelline, rufous just behind eye, entire sides of face having more or less distinct small streaks of blackish, and traversed by a broad blackish line across ear-coverts; fore part of cheeks and chin sandy isabelline; throat and chest sandy buff, slightly mottled with streaks and narrow horseshoe-shaped bars of blackish; breast and abdomen white; sides of body slightly tinged with sandy buff, and distinctly barred with black; under tail-coverts pale sandy buff, with blackish centers, longer ones narrowly barred with black near their ends; under wing-coverts and axillars distinctly barred with black and white, white bars on the latter slightly wider than the black bars; lower primary-coverts ashy; quills ashy below, secondaries fringed with white at the ends. 'Basal half of upper bill horny, distal half blackish brown; basal half of lower bill greenish, remainder blackish brown; feet greenish; iris brown.' (*Cripps.*) Length, 223; culmen, 58; wing, 124; tail, 48; tarsus, 30.

"*Adult female.*—Does not perceptibly differ from the male in color and markings. Length, 240; culmen, 62; wing, 129; tail, 44; tarsus, 30.

"It is very difficult to distinguish young birds from old ones, and I believe that the only characters of any value are the uniform black stripes along the sides of the crown. In old birds, not only are these black stripes mottled with rufous, but there are also numerous small spots of rufous-buff interspersed among the black feathers of the back; the black subterminal marks on the scapulars are also smaller in the young birds than in the old. A further sign of immaturity is, I believe, to be seen in the nearly uniform fulvous-brown on the throat and fore neck, these portions being more mottled with lines and arrow-head spots of black in the old birds.

"From *G. gallinago* the present species is distinguished by the wire-like feathers in the tail and by the entire surface of the under wing-coverts being regularly barred with black and white, and the outer web of the first primary being whity-brown instead of pure white. Occasionally young birds of *G. stenura* have the whole of the breast and abdomen regularly barred with dusky." (*Sharpe.*)

122. **GALLINAGO MEGALA** Swinhoe.

SWINHOE'S SNIPE.

Gallinago megala SWINHOE, Ibis (1861), 343; SHARPE. Cat. Birds Brit. Mus. (1896), 24, 624; Hand-List (1899), 1, 165; MCGREGOR and WORCESTER, Hand-List (1906), 29.

Can-du-ro', Manila.

Bantayan (*McGregor*); Basilan (*Steere Exp., McGregor*); Calamianes (*Bourns & Worcester*); Cebu (*Everett*); Leyte (*Everett*); Lubang (*McGregor*); Luzon (*Jagor, Bourns & Worcester, Whitehead, McGregor*); Masbate (*Bourns & Worcester*); Mindanao (*Everett, Steere Exp., Bourns & Worcester, Celestino*); Mindoro (*McGregor*); Negros (*Bourns & Worcester*); Palawan (*Whitehead, Bourns & Worcester*); Panay (*Bourns & Worcester*); Sibuyan (*Bourns & Worcester*); Siquijor (*Bourns & Worcester*); Tawi Tawi (*Bourns & Worcester*). Eastern Siberia and Japan; in winter China south to the Moluccas.

"*Adult male.*—Similar to *G. stenura*, and with wire-like outer tail-feathers, but these not so narrow and showing at least two distinct bars towards the ends; the tail-feathers twenty in number, of which the seven outer ones are attenuated, and only the six central ones show the characteristic broad subterminal band of rufous. 'Bill light yellowish brown for basal two-thirds, yellower on base of under mandible, blackish brown on apical third; feet light yellowish gray, with blackish brown claws; iris dark umber brown.' (*Swinhoe.*) Length, 240; culmen, 58; wing, 137; tail, 55; tarsus, 34.

"*Adult female.*—Does not differ from the male. 'Legs and feet pale bluish gray, nails black.' (*Everett.*) Length, 267; culmen, 66; wing, 142; tail, 55; tarsus, 33.

"*Young birds.*—As with *G. stenura* so with the present species, the young birds appear to be distinguishable by their more uniform dark brown throat and chest; the stripes on the sides of the crown are also black and not mottled with rufous spots." (*Sharpe.*)

"Extremely abundant in rice-fields at certain seasons." (*Bourns and Worcester MS.*)

123. **GALLINAGO GALLINAGO** (Linnæus).

FANTAIL SNIPE.

Scolopax gallinago LINNÆUS, Syst. Nat. ed. 10 (1758), **1**, 147.
Gallinago gallinago SHARPE, Cat. Birds Brit. Mus. (1896), **24**, 633; Hand-List (1899), **1**, 165; OATES, Cat. Birds' Eggs (1902), **2**, 61; MCGREGOR and WORCESTER, Hand-List (1906), 29.
Gallinago cœlestis OATES, Bds. Brit. Burmah (1883), **2**, 381.

Can-du-ro', Manila and Mindoro.

Bohol (*Everett*); Leyte (*Everett*); Luzon (*Meyer, Everett, Whitehead, McGregor*); Mindanao (*Mearns*); Mindoro (*McGregor*). Europe to northern Asia; in winter Senegambia and northeastern Africa, Indian Peninsula to Malay Peninsula and the Moluccas.

"*Male and female.*—Crown black with a fulvous streak over median line; a blackish streak from bill to eye, above and below which the feathers are pale fulvous; chin whitish; throat and sides of head and neck fulvous, streaked with black; breast and sides of body fulvous, barred with black; abdomen and vent white; under tail-coverts fulvous, streaked with brown; under wing-coverts barred indistinctly with black and white; tail black, the end rufous mottled with black; upper plumage black, edged and streaked with rich fulvous and chestnut; wing-coverts black, barred with fulvous; quills dark brown, narrowly edged with whitish. Bill fleshy brownish, green for two-thirds of its length from base, remainder horny brown; iris very dark brown; legs and feet brownish green. Length, 267; tail, 61; wing, 127; tarsus, 30; bill from gape, 58." (*Oates.*)

"*Adult female.*—Similar to the male. Length, 267; culmen, 71; wing, 135; tail, 62; tarsus, 33.

"*Young.*—Differs from the adult in being more rufous, especially on the throat and neck. The black markings of the back are more broken up and mottled with rufous bars, and the pale outer bands along the scapulars are not so wide. Seebohm states that young snipes may be recognized by not having a dark shaft-line on the light tips of the upper wing-coverts, but I have found indications of the latter in quite young birds.

"*Nestling.*—Covered with down of a chestnut color, interspersed with black along the back, and prettily variegated with silvery tips to the feathers; below the eye a whitish streak, bordered with lines of black; under surface of body bright chestnut, with a black spot on the throat and a black line across the fore neck." (*Sharpe.*)

"This species and *G. stenura* are likely to be confounded unless special attention is paid to the differences between them. The first and most unfailing point of difference is in the tail. In *G. gallinago* the tail is composed of twelve, fourteen, or sixteen ordinary soft feathers; in *G. stenura* there are ten soft feathers and on either side of these a number, varying from five to nine, of narrow rigid feathers with apparently no webs. These narrow feathers require to be looked for; they do not strike the eye, as they are more or less hidden by the tail-coverts and are moreover very close together. A second point of difference lies in the coloration of the lower surface of the wing. In the pintail snipe the axillars and the under wing-coverts are very distinctly and regularly barred with dark brown throughout. In the common snipe these same parts are indistinctly barred, and there is always a patch on the coverts left quite white and unbarred. Mr. Hume points out one or two additional differences which it may be well to quote: In the common snipe the outer web of the first primary is white or nearly so, and the secondaries are broadly tipped with white; in the pintail the outer web of the first primary is of the same color as the inner, and the secondaries are only margined with albescent or brownish white." (*Oates.*)

Genus ROSTRATULA Vieillot, 1816.

Bill long and slender but shorter than in *Gallinago*, its tip slightly swollen and bent downward with a median ridge and two lateral grooves, not pitted; culmen little longer than tarsus; female brighter in plumage than male.

124. **ROSTRATULA CAPENSIS** (Linnæus).

PAINTED SNIPE.

Scolopax capensis Linnæus, Syst. Nat. ed. 12 (1766), **1**, 246.

Rostratula capensis Sharpe, Cat. Birds Brit. Mus. (1896), **24**, 683; Hand-List (1899), **1**, 167; Blanford, Fauna Brit. Ind. Bds. (1898), **4**, 293, fig. 67; Oates, Cat. Birds' Eggs (1902), **2**, 68; McGregor and Worcester, Hand-List (1906), 29.

Pa-co'-bo, Manila.

Catanduanes (*Whitehead*); Leyte (*Everett*); Lubang (*McGregor*); Luzon (*Everett, Bourns & Worcester, McGregor*); Marinduque (*Steere Exp.*); Mindanao (*Murray, Everett, Steere Exp., Bourns & Worcester*); Panay (*Bourns & Worcester*); Samar (*Steere Exp., Whitehead*); Sibuyan (*McGregor*); Siquijor (*Bourns & Worcester*). Africa, Indian Peninsula, Greater Sunda Islands; Burmese provinces to China and Japan south to Malay Peninsula.

"*Adult female.*—Above ashy brown, strongly glossed with olive-green, freckled all over with transverse lines of dusky blackish, with here and there broader bars of greenish black; some of the scapular feathers edged with bright ocherous forming a streak down each side of the back; long inner coverts pure white, forming another streak, generally concealed by the scapulars; wing-coverts distinctly glossed with olive-green and finely barred with dusky; alula, primary-coverts, and quills pearly gray, freckled with irregular wavy lines of black, and ocellated ovate spots of rich ocherous on outer web, and with bars of the same color on inner web; all the quills marked with black at base of outer web, more distinctly seen in the primaries than the secondaries; lower back, rump, upper tail-coverts, and tail pearly gray, with black cross-lines, rump with a few white spots, upper tail-coverts spotted with rich ocherous, tail-feathers barred with ocherous; crown dusky, slightly glossed with olive-green, a band of ocherous down the center, bordered on each side by a shade of black; round eye a cincture of isabelline whitish, reaching to a point above ear-coverts, and surrounded by a blackish shade above and below, more broadly in front; lores, sides of face, and throat, deep chestnut, extending backwards round hind neck; across fore neck a broad collar of greenish black; remainder of under surface white, extending upwards on either side of the black præ-pectoral band; on each side of upper part of breast a black patch with a slight greenish gloss, succeeded by some brown feathers waved with dusky lines; axillars and under wing-coverts white, outer ones ashy, freckled with dusky cross-lines and small spots of white or buff. 'Bill greenish, yellowish fleshy at the tip of both mandibles; feet pale green; iris dark brown.' (*Butler.*) Length, 229; culmen, 47; wing, 140; tail, 42; tarsus, 43.

"*Adult male.*—Different from the female and rather smaller. Easily distinguished from the female by the absence of chestnut on the throat and neck, and by the different color of the wing-coverts. The latter, instead of being olive-green barred with blackish cross-lines, are bronzy olive, with numerous bar-like spots of yellow-ocher, these spots having a black line above and below; the inner secondaries similarly colored and marked. Although there is a line of sandy buff on each side of the back, there are apparently no white parapteral plumes. Instead of the chestnut on the throat, the latter is white with dusky spots on the upper part, the lower throat light brown, mottled with dusky bars and whitish margins to the feathers, the lower border of this dusky patch edged with a band of black. 'Bill purplish brown; feet dull slaty blue; iris dark brown.' (*S. Stafford Allen.*) Length, 229; culmen, 49; wing, 127; tail, 41; tarsus, 43.

"*Young male.*—Resembles the old male almost exactly, but has the throat entirely white, the lower throat and fore neck washed with brown, with some dusky streaks; these streaks on the full-grown male are sometimes black, but the feathers of the back and scapulars have spots or margins of white.

"*Young female.*—Is at first like the young male and has the same yellow-spotted wing-coverts; the hind neck is gray, vermiculated with dusky like the male, and the markings on the throat are similar to those of the latter sex. When the chestnut color is first assumed, it is of a dull tint, and is obscured by dusky margins to the feathers; the chin is white, and the throat and fore neck uniform brown, with which the chestnut feathers are often mingled." (*Sharpe.*)

"Fairly abundant about the rice-fields. Easy to bring down on account of its comparatively slow and heavy flight. Resident in the Philippines. We obtained its nest and eggs in Siquijor." (*Bourns and Worcester MS.*)

Subfamily PHALAROPODINÆ.

Small sandpipers with the toes lobed, and posterior side of tarsus serrated.

Genus LOBIPES Cuvier, 1817.*

Bill slender, nearly cylindrical, not widened toward tip; nostrils separated from loral feathers by a space equal to much less than the depth of upper mandible at base.

125. **LOBIPES LOBATUS** (Linnæus).

NORTHERN PHALAROPE.

Tringa lobata Linnæus, Syst. Nat. ed. 10 (1758); ed. 12 (1766), **1**, 149.
Phalaropus lobatus Ridgway, Man. North Am. Bds. (1887), 144.
Phalaropus hyperboreus Sharpe, Cat. Birds Brit. Mus. (1896), **24**, 698; Hand-List (1899), **1**, 167; Oates, Cat. Birds' Eggs (1902), **2**, 70.

Basilan Straits (*Mearns*). Arctic regions; in winter to southern oceans.

"*Adult female in summer.*—Above dark plumbeous, the back striped with ochraceous or buff; wings dusky, the greater coverts broadly tipped with white; lower parts white; chest and sides of neck rufous.

"*Adult male in summer.*—Similar to the female, but colors duller, the rufous almost confined to sides of neck, and less distinct, the chest chiefly mixed with white and grayish.

"*Winter plumage.*—Forehead, superciliary stripe, sides of head and neck, with lower parts generally, pure white; top of head grayish, the feathers with dusky shaft-streaks and whitish borders; a blackish spot in front of eye, and side of head, from beneath eye, across ear-coverts mixed dusky and grayish white; upper parts chiefly grayish; sides of chest washed or clouded with grayish.

"*Young.*—Top of head dusky, with or without streaks; back and scapulars blackish, distinctly bordered with buff or ochraceous; middle wing-coverts bordered with buff or whitish; forehead, supra-auricular stripe, lores, and lower parts white, the chest and sides of breast sometimes suffused with dull brownish; ear-coverts dusky.

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* Cf. Allen, *Bull. Am. Mus. Nat. Hist.* (1907), **24**, 20.

"*Downy young.*—Above bright tawny, the rump with three parallel stripes of black, inclosing two of paler fulvous than the ground-color; a triangular patch of brown on crown, bounded irregularly with blackish; a black line over ears; throat and rest of head pale tawny; rest of lower parts white, becoming grayish posteriorly.

"Length, 178 to 203; wing, 102 to 113; culmen, 20 to 23; tarsus, 19 to 20; middle toe, 16 to 19." (*Ridgway.*)

Suborder PARRÆ.

Family **PARRIDÆ.**

In general aspect and habits like the rails but distinguishable at once by the enormously lengthened toes and claws; claw of hind toe exceeding the very long toe.

Genera.

a^1. No frontal shield nor lappet; primaries attenuated at their tips; center tail-not elongated .... **Hydralector** (p. 150)

a^2. With a leaf-like frontal lappet; primaries not produced; center tail-feathers feathers greatly elongated .... **Hydrophasianus** (p. 151)

Genus HYDROPHASIANUS Wagler, 1832.

End of first primary produced as a filamentous appendage about 30 mm. in length; second and third also produced but the slender tip often broken; tip of fourth primary less slender; a sharp horny spur at bend of wing.

126. **HYDROPHASIANUS CHIRURGUS** (Scopoli).

PHEASANT-TAILED JACANA.

Tringa chirurgus Scopoli, Del. Flor. et Faun. Insubr. (1786), **2,** 92.

Hydrophasis chirurgus Sharpe, Cat. Birds Brit. Mus. (1896), **24,** 69; Hand-List (1899), **1,** 168; Oates, Cat. Birds' Eggs (1902), **2,** 71; McGregor and Worcester, Hand-List (1906), 30.

Calayan (*McGregor*); Luzon (*McGregor*); Mindanao (*Mearns*); Mindoro (*Steere Exp., Bourns & Worcester*). Indian Peninsula, Indo-Chinese contries to Malay Peninsula and greater Sunda Islands.

Adult in breeding plumage.—Sexes similar; head, chin, and throat white; occiput and a line on each side of neck black, behind this a large saddle of golden yellow; mantle and scapulars dark brown glossed with violet; back, rump, and tail black; lower parts, except chin and throat, dead black; first primary black, the other primaries mostly white, but with some black at their tips; remainder of wing white; axillars and wing-lining white. Iris brown, bill blue, paler at tip; legs blue; nails blackish. Length of male about 330; wing, 190; tail, 131; exposed culmen, 28; tarsus, 54; middle toe with claw, 75; hind toe without claw, 20; claw, 29. Length of female, 380; wing, 250; tail, 162; exposed culmen, 28; tarsus, 60; middle toe with claw, 85; hind toe with claw, 57.

Adult in non-breeding plumage.—Differs from the breeding plumage chiefly as follows: Upper parts earthy brown with little gloss; under parts, including tail and its coverts, white except a black plastron on fore breast which extends forward on each side of neck; golden collar replaced by a golden yellow band on each side; secondaries and coverts mostly earthy brown speckled with white.

Birds in intermediate plumage present endless combinations of the breeding and non-breeding plumage.

"*Young.*—Generally resembles the winter plumage of the adults, but is always distinguished by its rufous head, and in the first stage of plumage by the sandy rufous margins to the feathers of the upper surface; the dusky band of the sides of the neck is feebly indicated and the horseshoe collar on the fore neck is marked by a few spots of dusky blackish; the white on the primaries is more restricted, but the elongated tips are present." (*Sharpe.*)

"Quite abundant about the Laguna de Naujan, in Mindoro. It runs about over the leaves of water plants, and when approached sinks its body in the water until only its head and tail can be seen. When wounded it dives, and sometimes hangs onto water plants below the surface until it dies." (*Bourns and Worcester MS.*)

This jacana is abundant in Luzon in fresh-water swamps and on the borders of lakes.

Genus HYDRALECTOR Wagler, 1832.

This genus differs from *Hydrophasianus* chiefly in having a fleshy lappet near the base of bill and the tips of the primaries not attenuated.

127. HYDRALECTOR GALLINACEUS (Temminck).

COMB-CRESTED JACANA.

Parra gallinacea Temminck, Pl. Col. (1831), **5**, pl. 464.

Hydralector gallinaceus Sharpe, Cat. Birds Brit. Mus. (1896), **24**, 79; Hand-List (1899), **1**, 168; Oatès. Cat. Birds' Eggs (1902), **2**, 73; Mearns, Proc. Biol. Soc. Wash. (1905) **13**, 89; McGregor and Worcester, Hand-List (1906), 30.

Mindanao (*Mearns*). Australia, Celebes, southern Borneo.

"*Adult male.*—Above bronzy brown, more dingy on the lower back and rump; upper tail-coverts and tail black, all but the center tail-feathers white at base; wing-coverts like the back; marginal coverts, alula, primary-coverts, and quills black, with a slight bluish gloss; inner secondaries bronzy brown like the back; forehead behind the lappet to center of crown, sides of face, and sides of neck golden straw-color; throat white, inclining to golden straw-color on fore neck; an infra-loral streak of black from fore part of cheeks to fore part of eye; hinder crown black, extending in a broad line down hind neck and overspreading upper mantle; chest, breast, and sides of body, as well as under wing-coverts and axillars, sooty black; entire abdomen, lower flanks, thighs, and under tail-coverts white; quills glossy black below. 'Bill greenish gray at the extreme tip, then black to near nostrils; basal portion of upper mandible and the helmet aurora-red; base of lower mandible light primrose-yellow; fore part of tibia red, with a mixture in patches of yellow and greenish gray; iris light sulphur-yellow; eyelash light ash-gray.' (*Gould.*) Length, 229; culmen with frontal lappet, 46; wing, 142; tail, 41; tarsus, 61; middle toe with claw, 91.

"*Adult female.*—Resembles the male in color but is decidedly larger; a male from Port Essington measures 178 in length and has the wing 119, while a female from the same place measures 215 in length and has the wing 142.

"*Young.*—Differs considerably from the adult. General color olive-brown above, the feathers with sandy-rufous margins; crown bright rufous; under surface entirely white." (*Sharpe.*)

Suborder CURSORII.

Family **GLAREOLIDÆ.**

Bill short; culmen curved; gape deeply cleft, its width greater than length of culmen; wings long and pointed reaching beyond the forked tail; tarsus twice the length of culmen from base and more than middle toe with claw; claw of middle toe half the length of its toe and pectinate on its inner edge.

Genus GLAREOLA Brisson, 1760.

Characters same as those given for the Family.

128. **GLAREOLA ORIENTALIS** Leach.

EASTERN SWALLOW PLOVER.

Glareola orientalis Leach, Trans. Linn. Soc. (1820), 132, pl. 13; Oates, Birds Brit. Burmah (1883), **2**, 361; Cat. Birds' Eggs (1902), **2**, 78; Sharpe, Cat. Birds Brit. Mus. (1896), **24**, 58; Hand-List (1899), **1**, 171; Blanford, Fauna Brit. Ind. Bds. (1898), **4**, 214 fig. 48 (head); McGregor and Worcester, Hand-List (1906), 30.

Calayan (*McGregor*); Luzon (*Steere Exp.*, *McGregor*); Negros (*Layard*); Palawan (*Whitehead*, *White*). China, eastern Siberia, Indian Peninsula, Indo-Chinese countries; in winter Malay Peninsula and Archipelago to Australia.

Adult male and female.—Above nearly uniform earthy brown; tail-coverts white; a narrow line below eye white; lores black, this color continued in a line below eyes to ear-coverts and across breast and bordered in front with white; sides of neck earthy brown, usually extending across fore breast; chin, throat, and breast light rufous or ocherous-brown; abdomen, flanks, and under tail-coverts white; primaries, secondaries, and alula blackish; axillars and under wing-coverts bright chestnut; white at base of tail gradually increasing in extent from the central pair of rectrices outward; tips brown. Bill black, scarlet posteriorly of nostrils; inside of mouth dull salmon-pink; iris brown; legs and nails dark seal-brown. Length of male, 230; wing, 182; tail, 78; exposed culmen, 14; tarsus, 34; middle toe with claw, 29. Female, wing, 185; tail, 72; exposed culmen, 15; tarsus, 34.

A *young female* from Calayan, November 11, 1903, resembles the adult but the black and white lines across breast are wanting, being replaced by numerous blackish brown dashes a few of which are scattered forward onto throat.

"*Young.*—Differs from the adult in having the entire upper surface blackish, mottled with broad edgings of sandy buff to all the feathers, especially the quills and tail-feathers; head mottled like the back; cheeks and under surface of body isabelline-buff; fore neck and chest mottled with black, the feathers with a broad subterminal bar or heart-shaped spot of black.

"The sandy-buff margins to the feathers become bleached to white, and in many respects abraded, so that the subterminal black markings of the young plumage remain as margins to the dorsal feathers. The adult plumage is apparently gained by a molt, and the new feathers have a slight indication of a sandy-buff fringe on the upper parts, while the chest is mottled with ashy, the feathers having sandy-colored margins; the throat is at first irregularly spotted or streaked with blackish, and has scarcely any signs of a black crescent.

"There is considerable variation with regard to the rufous color of the throat and breast, this being sometimes very rich in tint. I imagine that this is a sign of nesting plumage to a great extent; but it may also indicate the age of the bird, the plumage becoming more richly colored as the bird gets older." (*Sharpe.*)

"Numerous flocks seen by me on the plains of Isabela in April, 1906." (*Worcester.*)

During the winter months this anomalous plover visits the Philippines in small numbers. Its deeply cleft bill and forked tail distinguish it from all other plovers; and even while on the wing it may be recognized by its circling, swallow-like flight.

Suborder ŒDICNEMI.

Family **ŒDICNEMIDÆ.**

Bill large and strong, nostrils pervious, their opening a long slit; wings when folded falling short of the tip of tail; secondaries longer than primaries; tarsus covered with hexagonal scales; tarsus longer than culmen or than middle toe with claw.

Genus ORTHORHAMPHUS Salvadori, 1874.

Characters same as those given for the Family.

129. **ORTHORHAMPHUS MAGNIROSTRIS** (Vieillot).

AUSTRALIAN STONE PLOVER.

Œdicnemus magnirostris VIEILLOT, Nouv. Dict. d'Hist. Nat. (1818), **23**, 231.

Orthorhamphus magnirostris SHARPE, Cat. Birds Brit. Mus. (1896), **24**, 22; Hand-List (1899), **1**, 173; OATES, Cat. Birds' Eggs (1902), **2**, 84; MCGREGOR and WORCESTER, Hand-List (1906), 30.

Ta-ba-la-lan, Calayan.

Calayan (*McGregor*); Camiguin N (*McGregor*); Fuga (*McGregor*); Luzon (*Whitehead*); Mindanao (*Mearns*); Mindoro (*Platen?*); Palawan (*Whitehead, White*). Australia to Bismarck Archipelago and north to Borneo and islands of Bay of Bengal.

"*Adult.*—Above ashy brown, with dusky shaft-lines; scapulars like back; upper tail-coverts ashy like back, but freckled and barred with dusky brown; lesser wing-coverts dark brown, lower ones blackish at the ends and forming a broad band across wing, followed by another band of white, formed by median coverts, which are gray at the tips, with a broad white band across the middle followed by another bar of dusky blackish; greater coverts entirely gray, fading off into whitish at the ends; alula and primary-coverts white like the quills they cover; primaries brownish black with white along inner web, extending across outer web of the first two; inner primaries pure white; secondaries dark brown, externally gray, with white bases and small white tips, also white along the inner webs; on the inner secondaries the white confined to inner web, long innermost secondaries ashy brown like back; tail ashy brown, with a black band at the end, before this a broad white band, preceded by a narrow black band; two middle feathers light ashy brown freckled with dusky mottlings, the other feathers also slightly freckled with dusky; crown and neck like the back; lores blackish, as also a broad band along the sides of crown, extending to the sides of the neck, where it joins the black ear-coverts and incloses the white of face, which consists of a white band above and below the eye extending above the ear-coverts; cheeks white, extending in a line along base of upper mandible and forming a streak in front of eye; fore part of cheeks black; chin and throat white; lower throat ashy brown, streaked with darker brown, as also the sides of neck; breast pale ashy; remainder of the under surface white with a slight tawny tinge; under tail-coverts tawny-buff; under wing-coverts and axillars white. 'Base of bill sulphur-yellow, continued along the sides of upper mandible above nostrils; remainder of bill black; tibia lemon-yellow; tarsi and feet wine-yellow; upper ridges of scales of toes lead-color; eyelids primrose-yellow; iris pale yellow.' (*Gould.*) Length, about 483; culmen, 76; wing, 274; tail, 109; tarsus, 84.

"*Adult female.*—Similar to the male in color. Length, about 508; culmen, 71; wing, 269; tail, 109; tarsus, 83.

"*Young.*—Two specimens from the Duke of York Island and Guadaleanar are apparently immature, having the feathers of the upper surface tipped with sandy buff, especially on the wing-coverts, where the white band on the median series is not so defined as in the adults, but showing a broader band of brown-tipped feathers below. There is, however, a second white band formed by the white tips to the greater wing-coverts, and it is somewhat curious that this should be a sign of immaturity." (*Sharpe.*)

The stone plover is remarkable for its large and powerful bill. It is rare in the Philippine Islands and so far as observed it is found on sea-beaches where it subsists upon sand-crabs.

Order **GRUIFORMES.**

CRANES.

Very large; bill moderate, straight, and somewhat compressed, rather blunt; nostrils large, elongated, and pervious, situated half way between tip and base of bill; neck very long, its upper part and the head clothed with few, hair-like feathers; wing rounded; secondaries longer than primaries; tail short and soft; legs very long; toes stout; hind toe short and elevated.

Suborder GRUES.

Family **GRUIDÆ.**

Characters same as those given for the Order.

Genus ANTIGONE Reichenbach, 1852.

Characters same as those given for the Order.

130. ANTIGONE SHARPI Blanford.

SHARPE'S CRANE.

Antigone antigone (not *Ardea antigone* LINNÆUS) SHARPE, Cat. Birds Brit. Mus. (1894), **23**, 264.
Antigone sharpii BLANFORD, Bull. Brit. Orn. Club (1895), **5**, 6.
Antigone sharpei SHARPE, Hand-List (1899), **1**, 178; OATES, Cat. Birds' Eggs (1902), **2**, 94; MCGREGOR, Bull. Philippine Mus. (1904), **4**, 11, pl. 2; MCGREGOR and WORCESTER, Hand-List (1906), 31.

Tipol, Luzon.

Luzon (*McGregor, Worcester*). Burma, Cochin China, and Malay Peninsula.

Adult.—Nearly uniform pearl-gray, lighter on neck; head and neck nearly naked to 100 mm. or more below anterior border of ear-coverts; a few gray feathers on chin and ear-coverts; a few scattered black hair-like feathers on upper throat and its sides.

An adult female taken in Nueva Ecija Province, Luzon, in September, yields the following data: Legs rose-pink, brown along the tarsi; nails blackish; most of bill and forehead pale dirty green; tip of bill gray; iris yellow; papillose parts of head and neck red, darker behind the ear-coverts. Weight, 5 kilos. Length, 1,270; extent, 2,200; wing, 565; tail, 220; culmen from base, 178; bill from front margin of nostril, 103; tarsus, 275; middle toe with claw, 117; hind toe with claw, 24. Another specimen from northern Luzon measures; culmen from base, 160; bill from nostril, 92; tarsus, 280; middle toe with claw, 107.

Sharpe's crane is abundant in the vicinity of Cabanatuan, Nueva Ecija Province, Luzon. When I observed them in September, 1908, they were feeding in pairs and frequenting a grassy plain. Two badly decayed eggs were taken from a nest which consisted of a little grass arranged on the ground in circular form. The eggs are white marked with a few lavender spots and dented with numerous, small, elongated pits. The surface is hard and smooth, very slightly glossy, and with a few small lumps about the larger end. When held toward the light the shell appears through the hole to be dark green. These eggs measure 91.5 by 63 and 97.5 by 64.6.

This species has been reported from the Candaba Swamp in central Luzon and Worcester found it abundant in northern Luzon. He says: "I saw *Antigone sharpei* in large numbers in Cagayan and Isabela during my recent trip, 1906, through those provinces. I am informed that these birds nest on the ground in May, contenting themselves with scraping together and flattening down a little grass on which to deposit their eggs. About August they lose their long wing-feathers and when in this conditions can rise but a few feet from the ground. The people of Isabela then pursue them on horseback and take them with lassoes, although according to the statements of the hunters the birds, aided by their wings, run about as fast as deer."

Order ARDEIFORMES.

HERONS, STORKS, IBISES, AND SPOONBILLS.

Body usually compressed; neck and legs very long; plumage full and soft; bill long, normally straight, wedge-shaped, and pointed, but in *Ibididæ* blunt and decurved, in *Plataleidæ* broadly spatulate; nostrils near base of bill, elongate; hind toe insistent or but slightly elevated. Nest made of sticks and twigs usually placed in a tree or bush; eggs three to five, blue and unspotted; young helpless at birth.

Suborders.

a^1. Sides of upper mandible with a deep, narrow groove extending from nostrils to tip .... **Plataleæ** (p. 157)
a^2. Sides of upper mandible without any groove.
  b^1. Claws broad and flat, that of middle toe not pectinate........ **Ciconiæ** (p. 159)
  b^2. Claws narrow and arched, that of middle toe with its inner edge distinctly pectinate .... **Ardeæ** (p. 161)

Suborder PLATALEÆ.

Families.

a^1. Bill slender, nearly cylindrical, decidedly decurved for nearly its whole length. **Ibididæ** (p. 157)
a^2. Bill very broad, flattened, greatly widened toward the tip.. **Plataleidæ** (p. 158)

Family **IBIDIDÆ.**

Bill long, compressed, and curved downward, its tip blunt and rounded; on each side of culmen a longitudinal groove in the basal portion of which the nostril is pierced.

Genus PLEGADIS Kaup, 1829.

Characters same as those given for the Family.

131. **PLEGADIS AUTUMNALIS** (Linnæus).

GLOSSY IBIS.

Tringa autumnalis LINNÆUS in Hasselquist, Reise Palæstina (1762), 306.
Plegadis falcinellus OATES, Bds. Brit. Burmah (1883), 2, 271; SHARPE, Cat. Birds Brit. Mus. (1898), 26, 29; Hand-List (1899), 1, 187; OATES, Cat. Birds' Eggs (1902), 2, 102; MEARNS, Proc. Biol. Soc. Wash. (1905), 18, 89; MCGREGOR and WORCESTER, Hand-List (1906), 31.

Mindanao (*Mearns*). China, Africa, Jamaica, Australia, eastern United States, southern Europe to India.

"*Adult.*—Above black, with varying glossy reflections, either bronzy purple or green; upper mantle deep maroon-chestnut, as also lesser wing-coverts and scapulars, the latter having bronzy tips; median and greater coverts duller and more oily green with bronze or steel-green reflections; alula, primary-coverts, and quills entirely glossy green, secondaries with purplish reflections; lower back, rump, upper tail-coverts, and tail all black, with various reflections of purple and oily or bronzy green; head and neck all round, as well as under surface of body deep maroon-chestnut, somewhat lighter on the chest and breast; forehead and fore part of crown glossy green, as also base of cheeks and a slight shade below eye; under tail-coverts, under wing-coverts, and axillars black, with metallic reflections of green and purple, the quill-lining being similarly glossed. 'Bill and feet dark brownish olive, iris brown.' (*Guillemard.*) Length, 558; culmen, 132; wing, 284; tail, 99; tarsus, 107.

"*Female.*—Similar to the male in plumage, but smaller in size and with a somewhat smaller bill.

"The winter plumage would appear to be adopted after the bird has left for its winter quarters, as a male killed in Celebes on August 20 is still in full red plumage. The winter plumage of the adults appears to consist in the entire loss of the chestnut plumage of the head, back, and scapulars; the rest of the plumage remains metallic with the same varying shades of green and purple, but the wings are rather more bronzy and the wing-coverts brighter metallic green. The head and neck are entirely streaked with black and whitish, and in the spring the red feathers of the summer plumage are gained by a molt.

"*Young birds* are similar to the winter plumage of the adult, but are more of a metallic oil-green, without the beautiful shades which distinguish the adults at all seasons. The head is dusky brown, with a certain amount of white striping on the head and throat, but not so much as in the adult winter plumage." (*Sharpe.*)

Although the only authentic record of the occurrence of the glossy ibis in the Philippine Islands is that made by Mearns, there is every reason to look for it in Luzon and other of the larger islands.

Family **PLATALEIDÆ.**

Members of this family greatly resemble herons but differ in having the bill flattened and spatulate, the tip blunt and rounded; from each of the nostrils there is a groove which extends parallel to the edge of the mandible and meets the opposite groove at tip of bill.

Genus PLATALEA Linnæus, 1766.

Character same as those given for the Family.

132. PLATALEA MINOR Temminck and Schlegel.

LESSER SPOONBILL.

Platalea minor TEMMINCK and SCHLEGEL, Fauna Japonica Aves (1850), 120, pl. 76; SHARPE, Cat. Birds Brit. Mus. (1898), **26**, 50; Hand-List (1889), **1**, 188; MCGREGOR, Phil. Jour. Sci. (1906), **1**, 766.

Luzon (*Banks*). Korea, Japan, China, and Formosa.

"*Adult male.*—Entirely white with a small but full nuchal crest; bare forehead black, the black skin extending just behind the eye and occupying the sides of the face, fore parts of cheeks, and upper throat, on which the white feathers impinge in a triangular form in the center; a yellow spot in front of the eye. 'Bill slate-color, transversely barred with black, the bars broken and disconnected on the spatule; apical edge black, succeeded by a patch and scattered spots of orange-ocher over the spatule, which is also freckled with light slate-color; inside of mouth deep indigo-black; inside of nostrils ocherous; bare skin of face black, with a bright yellow-ocher patch before eye, extending over under lid, and a thin line over upper lid; legs purplish black; iris blood-red.' (*Swinhoe.*) Length, 685; culmen, 183; wing, 371; tail, 107; tarsus, 121.

"*Adult female.*—Similar to the male. 'Bill flesh-color, longitudinally streaked and speckled with blackish, mottled and freckled with slate-color, chiefly about the spatule; bare skin of face dull purplish brown; feet purplish black; iris yellowish brown.' (*Swinhoe.*) Length, 660; culmen, 185; wing, 356; tail, 102; tarsus, 119.

"*Young.*—Differs from the adults in having a more yellowish bill, and blackish shaft-stripes to the quills; outer primaries blackish at ends of outer webs." (*Sharpe.*)

Mr. Charles S. Banks of the Bureau of Science brought the head of a spoonbill from Dagupan, Luzon, where he found this species not uncommon in November, 1907. While I have referred this specimen to *Platalea minor* its specific identity is uncertain.

Suborder CICONIÆ.

Family **CICONIIDÆ.**

Bill long, stout, compressed, and tapering, tip pointed; culmen straight except at the tip; nostril pervious in a slit; wing large; secondaries longer than primaries; tail short; tarsus about as long as culmen and covered with small hexagonal scales; hind toe about half the length of inner toe; nails short and blunt.

Subfamily CICONIINÆ.

Genus DISSÖURA Cabanis, 1850.

Character same as those given for the Family.

133. **DISSÖURA EPISCOPUS** (Boddaert).

WHITE-NECKED STORK.

Ardea episcopus BODDAERT, Tabl. Pl. Enl. (1783), 54.
Dissura episcopus SHARPE, Cat. Birds Brit. Mus. (1898). **26**, 294; BLANFORD, Fauna Brit. Ind. Bds. (1898), **4**, 370, fig. 87.
Dissöura episcopus SHARPE, Hand-List (1899), **1**, 190; OATES, Cat. Birds' Eggs (1902), **2**, 105; MCGREGOR and WORCESTER, Hand-List (1906), 31.

Basilan (*McGregor*); Bohol (*Steere*); Calayan (*McGregor*); Leyte (*Everett*); Luzon (*Heriot, Whitehead*); Marinduque (*Worcester*); Masbate (*Bourns & Worcester*); Mindanao (*Everett, Celestino, Goodfellow*); Mindoro (*Bourns & Worcester, McGregor*); Negros (*Steere, Bourns & Worcester, Whitehead, Keay*); Panay (*Bourns & Worcester*); Samar (*Whitehead*). Tropical Africa, Indian and Malay Peninsulas, Indo-Malay Islands, Indo-Chinese countries, Celebes, Ceylon.

"*Adult male.*—Above black, glossed with metallic green and purple, more especially on hind neck; entire back and upper tail-coverts glossed with metallic green; tail-feathers black, not to be confounded with the under tail-coverts, which are white; the outer retrices black, graduated, and forming a fork: wing-coverts like the back, but more distinctly glossed, especially on the lesser series, which are metallic purplish red; quills black, glossed with slaty externally and with metallic green on the inner face of all the quills, crown of head blue-black as far as occiput; nape and entire neck white as well as the throat; chin less thickly clothed with feathers; breast black, slightly glossed with metallic green, but more strongly with reddish purple, especially on the fore neck and chest; abdomen and under tail-coverts white, the long ones stiffened and resembling tail-feathers; axillars and under wing-coverts black with a gloss of metallic green. 'Bill in general black, tinged with red on culmen, tips, and margins; legs and toes red; claws reddish horn-color; iris crimson; eyelids and facial skin plumbeous.' (*Oates.*) Length, about 915; culmen, 914; wing, 508; tail, 183; tarsus, 179.

"*Adult female.*—Similar to the male. 'Iris very pale, almost whitish hue.' (*H. J. Rainey.*) Length, 914; culmen, 145; wing, 470; tail, 183; tarsus, 157.

"*Young birds* differ from the adults in being much browner and not having so much gloss, the black feathers on the head being replaced by bronzy brown, the purplish gloss on the wing-coverts almost absent, and the purple gloss on the breast being replaced by dull bronzy brown. The forehead generally shows a basal line of white feathers, but these are also apparent in some of the old birds, and are apparently shed by them in course of time." (*Sharpe.*)

Specimens obtained in Mindoro have an unfeathered band along the under side of the forearm. The skin of this space is dark crimson.

"Rather rare and very shy. Usually seen soaring at great heights. Occasionally met with perching on dead trees, or wading about the rice-fields." (*Bourns and Worcester MS.*)

Suborder ARDEÆ.

Family ARDEIDÆ.

Bill generally slender, straight, and compressed; culmen slightly curved near its tip; tarsus covered with transverse plates or large hexagonal scales; toes long; claws well developed, usually sharp and curved; hind toe well developed, its claw larger than claw of middle toe, the latter pectinate.

Genera.

- a^1. Rectrices twelve.
  - b^1. Bare portion of tibio-tarsus equal to or exceeding the inner toe with claw.
    - c^1. Middle toe with claw as long as tarsus or longer; claw of hind toe more than half the length of hind toe itself and but slightly curved; plumage variegated, never white........ **Pyrrherodia** (p. 162)
    - c^2. Middle toe with claw shorter than tarsus; claw of hind toe curved; plumage nearly uniform slate-gray or largely white.
      - d^1. Edge of mandibles distinctly serrated, a faintly indicated notch near tip of upper mandible.
        - e^1. Head crested, nape feathers elongated and ornamented; plumage of fore neck long but not disintegrated; no dorsal train; plumage uniform gray, or else, neck mostly white and crest black. **Ardea** (p. 163)
        - e^2. Head crested, without ornamental plumes; fore neck with disintegrated plumes; an immense dorsal train; plumage white. **Mesophoyx** (p. 165)
      - d^2. Edge of mandible not serrated; a distinct subterminal notch in upper mandible.
        - e^1. Bill shorter; culmen not exceeding middle toe with claw.
          - f^1. No crest plumes; a well-developed dorsal train; plumage white. **Herodias** (p. 166)
        - e^2. Bill longer; culmen exceeding middle toe with claw; plumage white. **Egretta** (p. 167)
  - b^2. Bare portion of tibio-tarsus less than inner toe; feathering sometimes extending nearly to the heel.
    - c^1. Bill without serrations in either mandible; upper mandible with a distinct notch just before the end.
      - d^1. Culmen longer than tarsus, the latter longer than middle toe; plumage very dark slate-color........ **Demigretta** (p. 168)
      - d^2. Culmen not longer than tarsus; two or three elongated nape plumes.
        - e^1. Tarsus and culmen about equal; two or three elongated nape plumes very slender........ **Nycticorax** (p. 169)
        - e^2. Tarsus decidedly longer than culmen; nape plumes wider. **Gorsachius** (p. 172)
    - c^2. Bill with distinct serrations near its end, sometimes only the upper mandible serrated; subterminal notch obsolete.
      - d^1. Bill moderately long, exceeding middle toe with claw; plumage more or less variegated........ **Butorides** (p. 174)
      - d^2. Bill shorter than middle toe with claw; plumage white. **Bubulcus** (p. 177)

a^2. Rectrices ten; plumage more or less mottled or streaked, never white.
  b^1. Exposed culmen equal to or more than middle toe without claw; size much smaller; wing less than 220 mm.
    c^1. Culmen more than tarsus.*
      d^1. Smaller; wing less than 160 mm........................ **Ixobrychus** (p. 178)
      d^2. Larger; wing more than 180 mm........................ **Dupetor** (p. 182)
    c^2. Culmen equal to or less than tarsus........................ **Nannocnus** (p. 180)
  b^2. Exposed culmen much less than middle toe without claw; size much greater; wing more than 260 mm........................ **Botaurus** (p. 183)

Genus PYRRHERODIA Finsch and Hartlaub, 1870.

This genus of large herons is distinguished by having the claws very long; hind toe contains its claw one and two-thirds times; tarsus contains the hind toe with claw one and one-half times.

134. PYRRHERODIA MANILENSIS (Meyen).

EASTERN PURPLE HERON.

Ardea purpurea var. *manilensis* MEYEN, Acta Acad. Leop. Carol. (1834), **16**, suppl. 102.

Phoyx manillensis SHARPE, Cat. Birds Brit. Mus. (1898), **26**, 63, pl. 1.

Ardea manillensis BLANFORD, Fauna Brit. India Bds. (1898), **4**, 381.

Pyrrherodias manillensis SHARPE, Hand-List (1889), **1**, 194; OATES, Cat. Birds' Eggs (1902), **2**, 111, MCGREGOR and WORCESTER, Hand-List (1906), 32.

La-pay, Ticao.

Bohol (*McGregor*); Calamianes (*Bourns & Worcester*); Catanduanes (*Whitehead*); Leyte (*Steere Exp.*); Luzon (*Meyen, Whitehead, McGregor*); Marinduque (*Steere Exp.*); Mindoro (*Bourns & Worcester*); Negros (*Steere Exp., Bourns & Worcester, Whitehead*); Palawan (*Bourns & Worcester*); Panay (*Steere Exp., Bourns & Worcester*); Romblon (*McGregor*); Samar (*Whitehead*); Sibuyan (*McGregor*); Tablas (*Bourns & Worcester*); Tawi Tawi (*Bourns & Worcester*); Ticao (*McGregor*). Celebes, Indian and Malay Peninsulas, Ceylon, China, Greater Sunda Islands.

Adult male.—"Forehead, crown, long occipital crest, a streak down back of neck, one on each side of neck, and another on each side from gape to nape slaty black; chin and throat white, rest of head and neck ferruginous red, paler and buff on sides of head and middle of fore neck; long feathers overhanging upper breast buffy white, streaked with black and chestnut; lower hind neck, back, rump, and upper tail-coverts, wings and tail slaty gray, back darker; quills and tail-feathers blackish; scapulars with long pointed rufous ends; middle of breast and abdomen and lower tail-coverts slaty black; sides of breast rich chestnut; flanks ashy gray; thigh-coverts cinnamon; wing-lining mostly ferruginous. Length, 965; tail, 19; wing, 368; tarsus 140; bill from gape, 152." (*Blanford.*)

"Upper mandible dark brown, the margins dusky yellow as far back as the nostrils, produced to the eye; margins from nostrils to gape dark brown; anterior half of lower mandible clear yellow; the posterior half dull yellow; gape and facial skin greenish yellow; edges of the eyelids yellow; feet and toes yellowish; the front of the tarsus and toes glossy brown; claws dark horn-color; iris yellow." (*Oates.*)

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* See also footnote under *Ixobrychus cinnamomeus*, p. 179.

"*Adult female.*—Similar to the male, but not quite so bright, and the black crest plumes not quite so long.

"'*Nestling.*—Crown of head, quills, and tail lavender-brown; throat and chin pure white; sides of head and upper neck rufous; lower neck rufous-gray, the feathers on the sides being centered with brown; lower plumage rufescent, each feather more or less dark-centered; thighs plain rufous; upper plumage brown, each feather edged with rufescent, more especially on the scapulars and tertiaries; upper and lower wing-coverts bluish brown, each feather broadly edged with rufous.' (*Oates.*)" (*Sharpe.*)

"*Young birds* have neither crest nor lengthened plumes on scapulars or breast; upper parts brownish gray, with broad rufous edges to the feathers; crown partly gray; neck rufous, fore neck with black streaks; lower surface a mixture of buff and gray." (*Blanford.*)

This species is the commonest of the large herons and may easily be identified by means of the preceding excellent descriptions. In a fine-plumaged male from Anao, Tarlac Province, Luzon, the upper mandible was dusky; lower mandible yellow, greenish toward base; upper part of legs light yellowish green, lower parts brown. Length, 1,000; wing, 375; tail, 133; tarsus, 124; culmen from frontal feathers, 136; middle toe with claw, 135; hind toe with claw, 80.

Genus ARDEA Linnæus, 1758.

The herons of this typical genus are of large size and except in plumage differ little from the members of *Pyrrherodia* but the bill is comparatively heavier and the claws much shorter; tarsus two to two and one-half times the length of hind toe with claw.

Species.

a^1. Crown and neck white (gray in young); crest black.................. **cinerea** (p. 163)
a^2. Crown, neck, and crest gray similar to the rest of the plumage. **sumatrana** (p. 165)

135. ARDEA CINEREA Linnæus.

COMMON HERON.

Ardea cinerea LINNÆUS, Syst. Nat. ed. 10 (1758), 1, 143; SHARPE, Cat. Birds Brit. Mus. (1898), 26, 74; Hand-List (1899), 1, 194; BLANFORD, Fauna Brit. Ind. Bds. (1898), 4, 382, fig. 84; OATES, Cat. Birds' Eggs (1902), 2, 113; MCGREGOR and WORCESTER, Hand-List (1906), 32.

Guimaras (*Steere Exp.*). Europe, Asia, Africa, Australia.

"*Adult in breeding plumage.*—General color above light ashy gray, scapular plumes, parapteral feathers, and innermost secondaries elongated and forming narrow drooping plumes of pearly gray or white; the wing-coverts gray like back, the outer ones pearly gray or white, the greater series dark ashy, outer webs entirely white; alula, primary-coverts, and quills purplish black, secondaries shaded with gray externally, inner secondaries like back; tail-feathers entirely gray; crown of head crested, white in the center, with a broad band of purplish black on each side, ending in a crest on occiput, and having two elongated nuchal plumes; entire sides of face, neck all round, and under surface of body white, with a creamy lilac shade on each side of fore neck and chest, which have drooping plumes of narrow, elongated, white feathers; the whole of the lower throat and fore neck varied with elongated black stripes, differing in breadth and situated on one side of the feather; on each side of the crop is a large patch of drooping plumes of purplish black, and continued along the sides of the body even as far as the vent; sides of body light ashy gray; thighs and under tail-coverts white; under wing-coverts ashy gray. 'Bill yellow, with the ridge of the upper mandible brown towards the end; feet dull green; tibia yellow; claws black; iris yellow; bare space between the bill and the eye green.' (*Macgillivray.*) Length, 762; culmen, 129; wing, 457; tail, 183; tarsus, 173.

"*Adult female.*—Similar to the male and equally beautifully colored, but the black crest-plumes not so long, and the black markings on the chest not quite so pronounced. Length, about 762; culmen, 124; wing, 452; tail, 170; tarsus, 162.

"*Young.*—Differs from the adult in being darker and not so pure gray; head dark slate-color, with a small nuchal crest of purplish black, neck rather lighter ashy; sides of face and ear-coverts also ashy gray; cheeks and throat white; neck dark slaty gray, as also the sides of the body, under wing-coverts, and axillars; lower throat, fore neck, and chest very broadly streaked with black, the black very thickly developed on throat, sparsely on fore neck, and represented by a few black streaks on sides of body; on each side of chest the black patch of the adult is represented by a dusky patch of feathers, relieved by several broad white streaks; on bend of wing a tinge of rust-color, which also pervades the black-streaked feathers of throat and fore neck." (*Sharpe.*)

"Rare. Not met with by us on our second visit to the Islands." (*Bourns and Worcester MS.*)

The common heron is rare in the Philippines but may be recognized by the pale gray head and neck, set off by the black crest, line on side of head, and broken line on throat. A very much damaged specimen in the Bureau of Science collection has unfortunately no data as to its source but it was probably killed in Luzon.

136. **ARDEA SUMATRANA** Raffles.

ASHY-GRAY HERON.

Ardea sumatrana RAFFLES, Trans. Linn. Soc. (1882), **13**, 325; SHARPE, Cat. Birds Brit. Mus. (1898), **26**, 68; Hand-List (1899), **1**, 194; OATES, Cat. Birds' Eggs (1902), **2**, 112; MCGREGOR and WORCESTER, Hand-List (1906), 32.

Bantayan (*McGregor*); Basilan (*McGregor*); Bohol (*McGregor*); Mindoro (*Porter*); Negros (*Keay*); Palawan (*Platen, Whitehead, Celestino, White*). Australia, Malay Peninsula, Sunda Islands, Celebes, Aracan, Tenasserim.

"*Adult male.*—Above dull slaty gray, lower back and rump paler gray; upper tail-coverts more dusky; scapulars with elongated plumes, pearly white at the ends; wing-coverts and quills dark slaty gray, with a slight greenish gloss on some of them; innermost secondaries elongated and tipped with pearly white, like scapulars; tail-feathers dark slate-color, slightly glossed with green; crown of head slaty gray and crested, crest-feathers with dusky margins, and with some long drooping plumes on nape, which are pearly white at the ends; sides of face and hinder cheeks pale vinaceous-brown; fore part of cheeks and upper throat white; neck all round slaty brown, the feathers mostly elongated, and with a mesial streak of white towards the ends; plumes on the fore neck similarly colored, but very much elongated; remainder of under surface slaty gray, paler on abdomen with longitudinal white centers to the feathers, these being indistinct upon abdomen and under tail-coverts; on each side of upper breast a large patch of slaty gray feathers, very slightly streaked with white; under wing-coverts and axillars slaty gray with white streaks; marginal feathers round bend of wing white. 'Bill black, lower mandible yellowish white at base; legs and feet black, soles faded yellow; iris pale orange.' (*H. O. Forbes.*) Length, about 1,143; culmen, 173; wing, 465; tail, 155; tarsus, 170.

"*Young.*—Differs from the adult in having no elongated plumes, and being everywhere browner; feathers of the upper surface tipped with a rufous or sandy-buff spot; feathers of neck and under parts vinaceous-rufous with mesial streaks of white, the whole under surface very thickly streaked." (*Sharpe.*)

This is the very largest of Philippine herons and it may be known at once by its almost uniform slate-gray color. In a male from Bohol the iris was red; bill black, with some yellow on lower mandible; legs and nails blackish brown. Wing, 410; tail, 170; culmen from frontal feathers, 180; tarsus, 164; middle toe with claw, 126; hind toe with claw, 77.

Genus MESOPHOYX Sharpe, 1894.

Of medium size; plumage all white and with long dorsal plumes during the breeding season; primaries exceed the secondaries by length of hind toe with claw; legs and feet black; toes long, culmen much less than middle toe without claw.

137. **MESOPHOYX INTERMEDIA** (Wagler).

LESSER EGRET.

Ardea intermedia WAGLER, Isis (1829), 659.
Mesophoyx intermedia SHARPE, Cat. Birds Brit. Mus. (1898), **26**, 85; Hand-List (1899), **1**, 195; OATES, Cat. Birds' Eggs (1902), **2**, 115; McGREGOR and WORCESTER, Hand-List (1906), 32.

Bohol (*Steere Exp.*); Calayan (*McGregor*); Mindanao (*Everett*); Mindoro (*Bourns & Worcester*); Palawan (*Whitehead*); Samar (*Steere Exp.*). Indian Peninsula, Malayan Archipelago, China, Japan.

"*Adult male in breeding plumage.*—Pure white above and below; the head crested, but having no drooping plumes; long ornamental plumes of back immensely developed, being 430 mm. in length; feathers on the fore neck beautifully developed, 200 mm. long, the webs entirely broken up; bare part of tibia entirely black like the tarsi and toes. 'Bill black, facial skin green; iris yellow; feet and toes black.' (*Oates.*) Length, about 208; culmen, 74; wing, 317; tail, 137; tarsus, 114; middle toe with claw, 99.

"*Adult female.*—Similar to the male, but the ornamental plumes not so much developed.

"*Adults in winter plumage.*—Pure white, but losing the ornamental plumes altogether. 'Bill yellow, with blackish tip.' (*Oates.*)

"*Young.*—Entirely like the adults in winter plumage; the texture of the plumage soft and downy, and devoid of ornamental plumes." (*Sharpe.*)

"Comparatively rare and very shy. Fairly abundant about the Laguna de Naujan in Mindoro." (*Bourns and Worcester MS.*)

Genus HERODIAS Boie, 1822.

Of very large size and plumage entirely pure white.

138. **HERODIAS TIMORIENSIS** (Lesson).

TIMOR WHITE EGRET.

Ardea timoriensis LESSON, Traité d'Orn. (1831), 575.
Herodias timoriensis SHARPE, Cat. Birds Brit. Mus. (1898), **26**, 98; Hand-List (1899), **1**, 195; MEARNS, Proc. Biol. Soc. Wash. (1905), **18**, 89; McGREGOR and WORCESTER, Hand-List (1906), 33.

Luzon (*McGregor*); Mindanao (*Mearns*). Northern China and Japan to Australia.

Adult male in breeding plumage.—"Entirely pure white; a bunch of elongated plumes on the back scarcely reaching beyond the tail. 'Bill beautiful orange; naked space before and behind the eye fine greenish yellow; legs above the knee pale dull yellow, this color continued down the center of the inner part of the tarsi; remainder of tarsi and feet black.' (*Gould.*) Length, 762; culmen, 112; wing, 381; tail, 160; tarsus, 132 to 162." (*Sharpe.*)

The following data are from the Luzon specimen which I have recorded: Killed on the Laguna de Bay, Luzon, March 16, 1906. Sexed by the taxidermist as a male. Entire legs and feet black; bill yellow. Dorsal plumes reaching little beyond base of tail, the bird being in rather poor plumage. Tarsus, 159; bill from gape, 140; culmen from frontal feathers, 114. This species is the largest as well as the rarest of the pure white herons known from the Philippine Islands.

Genus EGRETTA Forster, 1817.

This genus appears to be closely related to *Mesophoyx* but the bill is longer and more slender; toes and claws shorter; culmen longer than middle toe with claw, primaries and secondaries about equal in length.

139. **EGRETTA GARZETTA** (Linnæus).

LITTLE WHITE EGRET.

Ardea garzetta LINNÆUS, Syst. Nat. ed. 12 (1766), **1**, 237.
Garzetta garzetta SHARPE, Cat. Birds Brit. Mus. (1898), **26**, 118; Hand-List (1899), **1**, 197; OATES, Cat. Birds' Eggs (1902), **2**, 120.
Herodias garzetta BLANFORD, Fauna Brit. Ind. Bds. (1898), **4**, 387, fig. 91.
Egretta garzetta MCGREGOR and WORCESTER, Hand-List (1906), 33.

Ta-ling-daó, Cagayancillo.

Basilan (*McGregor*); Bohol (*Everett, McGregor*); Cagayancillo (*McGregor*); Cebu (*McGregor*); Leyte (*Everett*); Lubang (*McGregor*); Luzon (*Jagor, Everett, Heriot, Bourns & Worcester, McGregor*); Mindanao (*Steere Exp., Goodfellow*); Mindoro (*Porter*); Negros (*Steere Exp., Bourns & Worcester, Keay*); Panay (*Bourns & Worcester*); Romblon (*McGregor*); Siquijor (*Bourns & Worcester*). Africa, southern Europe to central Asia, China, Japan, Indian Peninsula, Malay Peninsula and Archipelago.

"*Adult male in breeding plumage.*—Everywhere snowy white, with two elongated plumes depending from nape; dorsal plumes enormously elongated into a beautiful tuft of feathers, which reach a little beyond the tail and are recurved at the ends; on the fore neck some elongated narrow plumes. 'Bill black; bare skin about the eye and base of bill, whitish fulvescent; tarsi and shanks black, feet greenish yellow, joints of toes spotted with black on the upper surface; iris pale ashy yellow, with an outer circle of brownish red.' (*T. Ayres.*) Length, about 508; culmen, 84; wing, 267; tail, 70; tarsus, 94.

"*Adult female.*—Similar to the male, but the ornamental plumes not quite so much developed. Length, 571; culmen, 88; wing, 287; tail, 99; tarsus, 95; middle toe with claw, 93.

"*Adult in winter plumage.*—Differs from that of the summer plumage in the want of all the ornamental plumes.

"*Young.*—Resembling the winter plumage of the adult." (*Sharpe.*)

The lesser and little white egrets are birds of wide distribution, usually found singly along sandy shores or in the vicinity of mangrove swamps.

Genus DEMIGRETTA Blyth, 1846.

In size of body and proportional size of bill, legs, and feet this genus is very similar to *Egretta* but the legs are feathered nearer to the heel and the plumage is normally slate-blue.

140. **DEMIGRETTA SACRA** (Gmelin).

BLUE REEF HERON.

Ardea sacra Gmelin, Syst. Nat. (1788), **1**, pt. 2, 640.

Demiegretta sacra Sharpe, Cat. Birds Brit. Mus. (1898), **26**, 137; Hand-List (1899), **1**, 198; Oates, Cat. Birds' Eggs (1902), **2**, 122; McGregor and Worcester, Hand-List (1906), 33.

Lepterodius sacer Blanford, Fauna Brit. Ind. Bds. (1898), **4**, 391, fig. 93.

Ta-lá-bon, Ticao.

Balabac (*Steere Exp.*, *Everett*); Bantayan (*McGregor*); Batan (*McGregor*); Bohol (*Steere Exp.*, *McGregor*); Bongao (*Everett*); Cagayancillo (*McGregor*); Cagayan Sulu (*Guillemard*); Calayan (*McGregor*); Cebu (*Murray*, *McGregor*); Cuyo (*McGregor*); Fuga (*McGregor*); Lubang (*McGregor*); Luzon (*Bourns & Worcester*, *Whitehead*); Marinduque (*Steere Exp.*); Masbate (*Bourns & Worcester*); Mindanao (*Bourns & Worcester*, *Mearns*); Mindoro (*Bourns & Worcester*, *McGregor*); Negros (*Bourns & Worcester*, *Keay*); Panay (*Bourns & Worcester*); Pata (*Mearns*); Romblon (*Bourns & Worcester*, *McGregor*); Semirara (*Worcester*); Sibuyan (*Bourns & Worcester*, *McGregor*); Siquijor (*Bourns & Worcester*); Sulu (*Guillemard*); Tablas (*Bourns & Worcester*); Tawi Tawi (*Bourns & Worcester*); Ticao (*McGregor*). Coast of Bay of Bengal to Australia and Oceania, north to Japan and Korea.

"*Adult male in breeding plumage.*—General color deep blackish slate; head almost black; feathers of upper breast elongated like those of the middle of the back, some of the latter decomposed; the elongated feathers of a paler slaty gray, and those of back reaching to end of tail; head crested and of the same color as the back; abdomen and vent-feathers tinged with ashy; a pure white streak down the center of the throat. Length, 584; culmen, 71; wing, 254; tail, 79; tarsus, 74.

"*Adult female in breeding plumage.*—Similar to the male, but the ornamental plumes slightly less developed. Length, 533; wing, 259.

"*Young.*—Paler and more sooty brown than the adults, and bleaching often to a slight earthy brown. No ornamental plumes on head, back, and chest.

"Adult birds, either in winter plumage or perhaps in the second year, are blacker than in the summer plumage. Some of these black-plumage birds have ornamental feathers which looks as if they were fully adult, and therefore they may be birds of the second year, as it is quite evident that the grayer plumaged ones are very old and perfect in livery.

"The white streak down the throat is often absent or reduced to a few spots. It appears to be absent equally in quite young birds and in old ones also, and it may be the result of inherent melanism in the species.

"The white form is exactly similar in size to the gray form, and, when adult, has the same ornamental plumes. In the Pacific islands the two forms appear to interbreed, and produce white young ones mottled or streaked with slaty gray. I have been unable to recognize any of the many forms into which the reef heron has been subdivided by naturalists. Some birds are larger, as will be seen by the measurements of the tarsi given in detail below, and these larger birds have a slightly longer wing and a heavier bill, but no specific distinctions can be founded on these variations, which are very slight." (*Sharpe.*)

"The color of the soft parts is excessively variable. In the adult the bare portion of the tibia varies from dark grass-green to greenish plumbeous; the back and sides of the tarsus and the greater part of the toes are generally pea-green, sometimes duller, sometimes yellower; the front of the tarsus and the first joint of the mid toe black, but sometimes these parts are green, only patched or mottled with black, and sometimes the black extends along the ridges of all the toes; the color of the bill and bare skin in front of the eye varies from sienna-brown to chocolate; sometimes the bill is a sort of light mahogany color, and the bare skin a sort of greenish brown; usually the bills are yellowish at the tips; the lower mandible is generally lighter, sometimes brownish horny, sometimes yellowish horny: and in the breeding-plumage the whole lower mandible becomes apparently a very decided, though dull, yellow; the irides vary from bright to deep yellow. I suspect, though we have not been able to work it out, that these differences in color are due both to age and to season." (*Hume.*)

"Quite common along the reefs. The young were met with on various occasions far inland along fresh-water streams, but we never found fully mature birds in such localities." (*Bourns and Worcester MS.*)

So far as observed, this species is solitary and found only on rocky shores, usually where coral flats are exposed at low tide.

Genus NYCTICORAX Forster, 1817.

Bill stout; legs rather short; tarsus about equal to middle toe with claw and little longer than exposed culmen; tarsus covered with hexagonal scales; head decorated with two or three long, slender, nuchal plumes and a full crest.

Species.

a^1. Wings ashy gray; back blackish glossed with green........	**nycticorax** (p. 170)
a^2. Wings maroon, nearly uniform with the back....................	**manillensis** (p. 171)

141. NYCTICORAX NYCTICORAX (Linnæus).

COMMON NIGHT HERON.

Ardea nycticorax LINNÆUS, Syst. Nat. ed. 10 (1758), **1**, 142.
Nycticorax nycticorax SHARPE, Cat. Birds Brit. Mus. (1898), **26**, 146; Hand-List (1899), **1**, 198; OATES, Cat. Birds' Eggs (1902), **2**; 123; MCGREGOR and WORCESTER, Hand-List (1906), 33.
Nycticorax griscus BLANFORD, Fauna Brit. Ind. Bds. (1898), **4**, 397, fig. 96.

Calayan (*McGregor*); Luzon (*Meyen, Steere Exp., McGregor*); Mindanao (*Everett*). Africa, central and southern Europe to Indian Peninsula, Malay Peninsula, China and Japan; Greater Sunda Islands to Celebes.

"*Adult male in breeding plumage.*—Black above, glossed with dark green, and with a slight shade of slaty gray on the mantle; upper scapulars like the back, lower ones light ashy gray; wings entirely light ashy gray or dove-color, with a slight shade of dull oily green on secondaries; lower back, rump, upper tail-coverts, and tail clear gray or dove-color; head crested, black, and with a dark green gloss, and having two long white nuchal plumes; base of forehead white, extending above eye to behind the latter; feathers below the eye, cheeks, throat, and under parts pure white; ear-coverts and sides of neck delicate isabelline gray, extending in a collar round hind neck, and to sides of body; thighs and under tail-coverts white; under wing-coverts and axillars very pale ashy. Length, about 457; culmen, 76; wing, 267; tail, 102: tarsus, 71.

"*Adult female in breeding plumage.*—Similar to the male in color and having the same long white plumes on the nape. Upper mandible slaty black with a whitish streak near the edges, central portion of lower mandible flesh-color, greenish towards base; skin round the eye pale green; tarsi and feet pale yellow; iris crimson.' (*T. Ayres.*)

"*Adults in winter plumage.*—Similar to the breeding plumage, but much greener on head and back, and not having the drooping white plumes on the nape.

"*Young.*—Brown above, varied with longitudinal triangular centers of rufous or buff to the feathers of back and wing-coverts; quills and tail-feathers tipped with white; head blackish, crest-feathers centered with rufous; sides of face and under surface of body fulvescent, streaked with dusky black, with which the feathers are margined; thighs, under wing-coverts, and axillars streaked like the sides of body; throat whitish.

"The full-grown young bird is similarly marked to the nestling described, but all the streaks and spots are much paler, the throat and under surface of the body being white, with a few dusky streaks. Judging from a specimen in the Tweeddale Collection from Canton, the adult plumage is assumed during the next breeding season, and even the white nape-plumes are put on, but the coloring of the head and back is not so bright as in older birds." (*Sharpe.*)

The common night heron in abundant in parts of Luzon but is not so widely distributed in the smaller islands as is the next species.

142. NYCTICORAX MANILLENSIS Vigors.

PHILIPPINE NIGHT HERON.

Nycticorax manillensis VIGORS, Proc. Zool. Soc. (1831), 98; SHARPE, Cat. Birds Brit. Mus. (1898), **26**, 162; Hand-List (1899), **1**, 198; MCGREGOR and WORCESTER, Hand-List (1906), 34.

Nycticorax manilensis OATES, Cat. Birds' Eggs (1902), **2**, 125.

Cuak-cuak, Bohol.

Bantayan (*McGregor*); Basilan (*Everett*); Bohol (*McGregor*); Caluya (*Porter*); Camiguin N. (*McGregor*); Catanduanes (*Whitehead*); Cebu (*Everett, Bourns & Worcester, McGregor*); Leyte (*Everett*); Luzon (*Lindsay, Cuming, Whitehead*); Marinduque (*Steere Exp.*); Masbate (*Bourns & Worcester*); Mindanao (*Platen, Steere Exp.*); Mindoro (*McGregor*); Negros (*Everett, Bourns & Worcester, Keay*); Panay (*Steere Exp., Bourns & Worcester*); Samar (*Bourns & Worcester*); Sibuyan (*Bourns & Worcester*); Siquijor (*Steere Exp., Bourns & Worcester, Celestino*); Tablas (*Bourns & Worcester*); Ticao (*McGregor*). Western Celebes and northern Borneo.

Adult (sexes similar).—Above deep maroon; crown and crest greenish black; long nuchal plumes whitish except at base and tip; a narrow eyebrow stripe light chestnut mixed with whitish; below white, throat more or less pervaded with chestnut; sides of face neck and breast chestnut; under wing-coverts, axillars, and thighs light chestnut mixed with white. Bill black; skin around eye dark green; legs yellow, nails black. "Bill black; feet pale ocherous-white, brown in front and upper part of toes; orbital skin yellowish green; iris golden yellow." (*Everett.*)

Male.—Length, 635; culmen, 70; wing, 317; tail, 117; tarsus, 79.

Adult female.—Similar to the male in color. Length, 559; culmen, 76; wing, 381; tail, 123; tarsus, 81.

"*Young.*—Wings conspicuously chestnut; spots and streaks on upper surface deep rufous or light chestnut; breast very broadly streaked with black. 'Bill brown, lower mandible dirty yellowish; legs light greenish yellow, claws gray; iris golden yellow.' (*Everett*)." (*Sharpe.*)

"Quite common, but very local in its habits. Feeds at night. Roosts during the day in lofty trees, frequently choosing trees which stand out in the open." (*Bourns and Worcester MS.*)

Oates records two eggs of the Manila night heron which were collected by the Steere Expedition in Siquijor, February 15, and two eggs taken by Moseley in May. The measurements are respectively: 56.3 by 36.8; 49.7 by 36.3; 60.9 by 37.5; 50.8 by 33.7.

Genus GORSACHIUS Bonaparte, 1855.

This genus resembles *Nycticorax* in having a short stout bill, deep nasal groove, and stout legs and toes; it differs in having the elongated crest feathers shorter and wider and in the coloration of the plumage. The tarsus is covered with hexagonal scales but those in front are very wide and appear as transverse plates.

Species.

*a*¹. Head black; axillars barred with black and white; primaries with whitish tips. **melanolophus** (p. 172)

*a*². Head chestnut; axillars rufous, barred with black; primaries rufous at tip, the white tips obsolete.......... **goisagi** (p. 174)

143. GORSACHIUS MELANOLOPHUS (Raffles).

MALAY BITTERN.

Ardea melanolopha RAFFLES, Trans. Linn. Soc. (1822), **13**, pt. 2, 326.

Gorsachius melanolophus SHARPE, Cat. Birds Brit. Mus. (1898), **26**, 166; Hand-List (1899), **1**, 199; BLANFORD, Fauna Brit. Ind. Bds. (1898), **4**, 398, fig. 97; OATES, Cat. Birds' Eggs (1902), **2**, 125; MCGREGOR and WORCESTER, Hand-List (1906), 34.

Balabac (*Everett*); Basilan (*Mearns*); Cebu (*Bourns & Worcester*); Guimaras (*Steere Exp.*); Luzon (*Heriot*); Masbate (*Bourns & Worcester*); Mindanao (*Steere, Steere Exp., Bourns & Worcester*); Palawan (*Platen, Whitehead, White*); Samar (*Whitehead*); Siquijor (*Bourns & Worcester*); Ticao (*McGregor*). Ceylon, southern India, Assam to Hainan, Greater Sunda Islands, Formosa south to Malay Peninsula.

"*Adult male.*—Above uniform cinnamon-rufous, wing-coverts and mantle with a slight ashy shade and with a certain amount of indistinct freckling; alula-feathers black or slightly mottled with rufous and having broad white tips; outer primary-coverts black, broadly tipped with white and rufous at the base; remainder of primary-coverts cinnamon-rufous slightly tipped with white; quills black, externally shaded with gray, broadly tipped with cinnamon-rufous, narrowly fringed with white at the ends; outer primaries with a large white terminal spot; inner secondaries like back; upper tail-coverts and tail dark slate-color, with a slight rufescent tinge at the ends of inner web; crown and long nuchal crest-feathers slaty gray or black; a narrow line of feathers over eye vinous-cinnamon, broadening out above ear-coverts and occupying the sides of crown, sides of neck, and sides of face; chin and center of throat pale isabelline brown, streaked with black down the center of throat, the black markings on the feathers being lateral and somewhat irregular in shape, the inner webs paler and cream-colored, imparting a rather broadly streaked appearance to the fore neck; center of breast and abdomen white or creamy buff, the feathers notched and barred with dusky, more distinct on the sides; abdomen fulvescent and under tail-coverts white, both of them scarcely spotted at all; under wing-coverts white, regularly spotted and barred with dusky; axillars regularly banded with black and white; quills ashy gray below, with the same rufous and white tips as on the upper surface. Culmen black, sides of the upper mandible and the lower one fleshy; legs and feet greenish, washed with brown on the front of the tarsus and toes. 'Iris golden yellow, frosted or stippled with olive at the exterior; gape, orbital and loral skin greenish and slaty.' (*W. V. Legge.*) Length, 508; culmen, 51; wing, 269; tail, 102; tarsus, 68.

"*Adult female.*—Similar to the male.

"The sequence of plumages in these night herons is not very easy to follow, but the nestling from Mindanao clearly proves that the first plumage is spotted with white and that the quills have broad white tips. Both *G. melanolophus* and *G. goisagi* occur on Mindanao, but the latter is doubtless only a winter visitor, while the former bird is resident. The same thing occurs in the Island of Formosa, as has been duly pointed out by Mr. Seebohm, in his 'Birds of the Japanese Empire,' where the difference between the two species has been correctly given.

"In the Hume collection there are several rufous-colored birds, which have not yet entirely divested themselves of the wavy immature plumage, while a female from Dibrughur is beginning to put on rufous plumage, though it is still for the most part in the mottled dress of the young. The birds from the Nicobars are decidely smaller and darker than birds from the mainland, and the wing does not exceed 240 mm.

"*Young.*—Entirely different from the adult, being brown above, thickly mottled and freckled with dusky blackish, and with longitudinal ochraceous shaft-streaks to the feathers of upper surface; wings like the back; primary-coverts for the most part rufous, freckled with dusky, quills black, tipped with white; primaries with a subterminal shade of rufous; tail-feathers slaty black; crown and nape crested, the feathers black, with arrow-shaped spots or bars of white; sides of face and sides of neck regularly barred with ocherous brown and black, with mesial white spots on the feathers on the sides of the neck; chin and upper throat uniform white; the center of the lower throat and fore neck generally pale vinaceous-buff, varied with black streaks and black mottling or bars, the feathers being browner laterally; sides of the body like the breast, similarly mottled and streaked with white; under tail-coverts white, with scarcely any black markings; under wing-coverts white mottled with dusky; axillars barred with black and white." (*Sharpe.*)

"Comparatively rare. Met with about the fish-pens of the natives, especially just at dusk." (*Bourns and Worcester MS.*)

"The eggs of the Malay bittern in the collection are of a pale bluish-white color. Two specimens measure respectively: 45.7 by 35.5; 48.2 by 35.5." (*Oates.*)

The above-described eggs were collected in Palawan, June 27, by Whitehead.

144. **GORSACHIUS GOISAGI** (Temminck).

JAPANESE BITTERN.

Nycticorax goisagi Temminck, Pl. Col. (1836), pl. 582.
Gorsachius goisagi Sharpe, Cat. Birds Brit. Mus. (1898), **26**, 169; Hand-List (1899), **1**, 199; McGregor and Worcester, Hand-List (1906), 34.

Luzon (*Heriot*); Mindanao (*Steere Exp.*). Japan and Formosa.

"*Adult.*—Differs from *G. melanolophus* in its deep vinous-chestnut head, which has a little shade of blackish on the forehead only; the mantle is browner, and the upper surface generally never seems to be free from dusky vermiculations; axillars black and rufous instead of black and white, and no white tips to the outer primaries. Length, 457; culmen, 39; wing, 259; tail, 94; tarsus, 63.

"*Young.*—Differs from the adult in being browner and more uniform on upper mantle and back, but with the wings much freckled with rufous-buff; crown dusky blackish, inclining to dark vinous on the neck. The young bird differs from the young of *G. melanolophus* by the rufous tips to the primaries.

"The description of the young bird is taken from a bird procured by Mr. Ringer at Nagasaki, which still retains some of the nestling down on the head. Full-grown birds, exactly similar in plumage, are in the collection from Luzon and Ayala in Mindanao. 'Bill green, culmen black; legs and feet green; iris yellow.' (*Moseley.*)" (*Sharpe.*)

Genus BUTORIDES Blyth, 1849.

Size small, plumage dark; bill long and slender, much longer than tarsus, the latter about equal to middle toe with claw; wing pointed, primaries exceeding secondaries by about two-thirds of tarsus.

Species.

a^1. Throat and cheek-stripes white and distinct; abdomen white.
  b^1. Smaller; wing about 178 mm. .... **javanica** (p. 174)
  b^2. Larger; wing about 200 mm. .... **amurensis** (p. 176)
a^2. Throat and cheek-stripe ashy or brown not distinctly indicated; abdomen rusty. **spodiogaster** (p. 176)

145. **BUTORIDES JAVANICA** (Horsfield).

JAVAN GREEN HERON.

Ardea javanica Horsfield, Trans. Linn. Soc. (1821), **13**, pt. 1, 190.
Butorides javanica Sharpe, Cat. Birds Brit. Mus. (1898), **26**, 177; Hand-List (1899), **1**, 199; Blanford, Fauna Brit. Ind. Bds. (1898), **4**, 395, fig. 95 (head); McGregor and Worcester, Hand-List (1906), 34.

Ba-caú i-tim', Manila.

Bongao (*Everett*); Cagayancillo (*McGregor*); Calamianes (*Bourns & Worcester*); Cebu (*Everett, Steere Exp., Bourns & Worcester*); Cuyo (*McGregor*);

Dinagat (*Everett*); Guimaras (*Steere Exp.*); Leyte (*Everett*); Lubang (*McGregor*); Luzon (*Jagor, Everett, Bourns & Worcester, Whitehead, McGregor*); Marinduque (*Steere Exp.*); Masbate (*Bourns & Worcester*); Mindanao (*Everett, Steere Exp., Bourns & Worcester, Goodfellow, Celestino*); Mindoro (*Bourns & Worcester, Everett, McGregor*); Negros (*Layard, Steere, Bourns & Worcester, Keay*); Nipa (*Everett*); Palawan (*Platen, Whitehead, Bourns & Worcester*); Panay (*Steere Exp., Bourns & Worcester*); Romblon (*McGregor*); Samar (*Steere Exp., Bourns & Worcester*); Semirara (*Worcester*); Sibuyan (*Bourns & Worcester, McGregor*); Siquijor (*Bourns & Worcester*); Sulu (*Guillemard*); Tablas (*Bourns & Worcester*); Tawi Tawi (*Bourns & Worcester*); Ticao (*McGregor*). Southern China, Malay and Indian Peninsulas, Celebes, Ceylon, Mascarene and Greater Sunda Islands.

"*Adult male.*—Above light slaty gray, feathers of back with hoary, white shaft-lines; long scapular-feathers green, or green with gray tips; wing-coverts and quills dark green with ocherous-buff margins, inclining to white on the edges of the greater-coverts and secondaries, most of the quills being fringed with white at the ends; lower back, rump, and upper tail-coverts dull green, more or less powdered with gray; tail dull green; crown dark glossy green, with the nape feathers produced into a point; hind neck and sides of neck gray, extending over the sides of face and ear-coverts; below the eye a streak of greenish black extending along the ear-coverts, along the upper part of which runs a whitish streak from behind the eye to the level of the nape; another streak of white from the base of the lower mandible along the cheeks; throat, fore neck, and abdomen white; sides of body and flanks, including the overhanging feathers on the sides of the upper breast, slaty gray like the sides of the neck, leaving the center of throat and fore neck white, slightly varied with dingy brown markings, these markings being on the edges of the throat-feathers; axillars and under wing-coverts gray, like the quill-lining. 'Upper mandible black, with a longitudinal yellow streak along the margin below the nostrils; grape greenish brown; lower mandible greenish yellow, more or less black along the edges; facial skin green; legs and toes green, front of tarsus and toes dusky, soles orange, and claws horn-color; iris yellow.' (*Oates.*) Length, 483; culmen, 70; wing, 178; tail, 63; tarsus, 51; middle toe with claw, 53.

"*Adult female.*—Exactly like the male, but a trifle more dingy, especially in the throat markings, where the brown is a little more distinct on the margins of the feathers. Length, 457; culmen, 61; wing, 173; tail, 70; tarsus, 46; middle toe with claw, 51.

"*Winter plumage.*—Duller than in summer and much greener above, without any gray shading; the head green.

"*Young.*—Brown above; the wing-coverts with triangular whitish or sandy-buff spots at their ends; head black, streaked with ochcrous-buff shaft-lines; sides of face and under surface of body whitish, strongly streaked with dusky-blackish margins to the feathers.

"The young bird is browner than the adults, with white mesial streaks on the wing-coverts; crown of head dusky black; under surface of body less gray and washed with brown." (*Sharpe.*)

"Extremely common. Found both along the seashore and about fresh-water streams and lakes." (*Bourns and Worcester MS.*)

146. **BUTORIDES AMURENSIS** (Schrenck).

AMUR GREEN HERON.

Ardea virescens var. *amurensis* SCHRENCK, Reis. Amurl. (1860), **1**, 437.
Butorides amurensis SHARPE, Cat. Birds Brit. Mus. (1898), **26**, 181; Hand-List (1899), **1**, 200; MCGREGOR and WORCESTER, Hand-List (1906), 34.

Calayan (*McGregor*); Cebu (*Everett, McGregor*); Luzon (*Whitehead*); Palawan (*Everett*); Samar (*Steere*). Greater Sunda Islands, China, Japan, Celebes, Amurland.

Although in color this species seems to be exactly like *B. javanica* it is much larger; the length of wing is particularly noticeable and the bill is longer, and deeper. A male collected by Major Mearns measures: Wing, 210; tail, 73; culmen from frontal feathers, 66; depth of bill at posterior border of nostril, 15; tarsus, 54; middle toe with claw, 62.

A *female* from Calayan measures: Wing, 197; tail, 69; culmen from frontal feathers, 64; depth of bill at posterior border of nostril, 13; tarsus, 52; middle toe with claw, 54.

Some of the records for *B. javanica* probably refer to the present species but it is impossible to disentangle them.

147. **BUTORIDES SPODIOGASTER** Sharpe.

NICOBAR GREEN HERON.

Butorides spodiogaster SHARPE, Bull. Brit. Orn. Club (1894), **3**, 17; Cat. Birds Brit. Mus. (1898), **26**, 182, pl. 2; Hand-List (1899), **1**, 200; MEARNS, Phil. Jour. Sci. (1907), **2**, sec. A, 353.

Palawan (*Mearns*). Andaman and Nicobar Islands.

"*Adult.*—Similar to *B. javanica*, but darker gray on the under surface, which is of a sooty-slate color with a slight tinge of rusty on the abdomen, cheeks and ear-coverts uniform slate-color. It much resembles *B. stagnatilis*, especially the birds from Flores, but it is not so dingy underneath and has a less shade of rusty on the abdomen. 'Bill black, lower portion of lower mandible, from base to tip, edged pale horny; front of tarsus, toes, and claws brownish green, bare portion of tibia and back of tarsus dirty greenish yellow; naked skin round eye dull green, tinged with yellow in front; eyelids deep green.' (*Hume.*) Length, 445; culmen, 60; wing, 193; tail, 53; tarsus, 43." (*Sharpe.*)

This species differs from both *B. javanica* and *amurensis* in its much darker color, particularly of the under parts which are nearly uniform slate-gray; the white of chin and throat is much restricted and on the fore breast is reduced to a few shaft-lines; all of the wing-coverts are edged with dull rusty buff. The specimen collected by Mearns near Palawan measures: Wing, 165; tail, 58; culmen from frontal feathers, 60; tarsus, 47; middle toe with claw, 50.

Genus BUBULCUS Bonaparte, 1854.

Non-breeding plumage all white; legs and nails black; primaries and secondaries about equal in length; exposed culmen less than middle toe with claw, the latter less than tarsus.

148. BUBULCUS COROMANDUS (Boddaert).

INDIAN CATTLE EGRET.

Caneroma coromanda BODDAERT, Tabl. Pl. Enl. (1783), 54.

Bubulcus coromandus SHARPE, Cat. Birds Brit. Mus. (1898), **26**, 217; Hand-List (1899), **1**, 202; OATES, Cat. Birds Eggs (1902), **2**, 130, pl. 5, fig. 2; BLANFORD, Fauna Brit. Ind. Bds. (1898), **4**, 389, fig. 92 (head); MCGREGOR and WORCESTER, Hand-List (1906), 35; MCGREGOR, Phil. Jour. Sci. (1907) 2, sec. A. 322.

Ta-gac' cal-a-bau, Manila; *la-guac'*, Calayan; *tá-bon*, Bohol.

Balabac (*Steere Exp., Everett*); Basilan (*McGregor*); Batan (*McGregor*); Bohol (*Everett, McGregor*); Bongao (*Everett*); Calayan (*McGregor*); Catanduanes (*Whitehead*); Cebu (*Steere Exp., Bourns & Worcester, McGregor*); Cuyo (*McGregor*); Guimaras (*Steere Exp.*); Lubang (*McGregor*); Luzon (*Jagor, Bourns & Worcester, McGregor*); Masbate (*Bourns & Worcester*); Mindanao (*Steere Exp., Goodfellow*); Mindoro (*McGregor*); Negros (*Steere Exp., Bourns & Worcester*); Palawan (*Steere, Everett, Whitehead, Platen, Steere Exp., Bourns & Worcester, White*); Panay (*Steere Exp., Bourns & Worcester*); Siquijor (*Celestino*); Sulu (*Platen*); Tablas (*Bourns & Worcester*); Ticao (*McGregor*). Eastern Siberia, Korea, China, Indian Peninsula, Ceylon; Indo-Chinese countries to Celébes and Moluccas.

Adult in breeding plumage.—White; head, neck, and fore breast golden buff; long decomposed dorsal plumes delicate vinaceous-pink, washed with brown; ends of the plumes on fore breast also vinaceous-pink. Iris light lemon-yellow; bill and bare skin around eye chrome-yellow; legs and nails black. A male from Mariveles, Luzon, measures: Length, 540; wing, 265; tail, 98; exposed culmen, 63; tarsus, 95; middle toe with claw, 89.

Young.—Pure white, without any ornamental plumes but with an orange tinge on the crown.

Winter plumage.—Pure white, without any ornamental plumes.

This bird is often seen in large flocks and individuals alight fearlessly on the backs of cattle; they often feed in plowed fields. Several hundreds of cattle egrets nested in a patch of giant grass near Guindulman, Bohol. Eggs obtained in June vary in length from 40 to 50 mm. and in width from 30 to 35. They are pale blue in color.

Genus IXOBRYCHUS Billberg, 1828.*

Small, wing 150 mm. or less; bill slender and sharp, plumage reddish brown, cinnamon-rufous, and white with some mixture of black.

Species.

a^1. Primaries black or blackish brown.. **sinensis** (p. 178)
a^2. Primaries cinnamon-rufous like back.............................. **cinnamomeus** (p. 179)

149. IXOBRYCHUS SINENSIS (Gmelin).

LITTLE YELLOW BITTERN.

Ardea sinensis GMELIN, Syst. Nat. (1788), **1**, pt. 2, 642.
Ardetta sinensis SHARPE, Cat. Birds Brit. Mus. (1898), **26**, 227; Hand-List (1899), **1**, 202; OATES, Cat. Birds' Eggs (1902), **2**, 131; McGREGOR and WORCESTER, Hand-List (1906), 35.

Ba-caú biñg-ey, Manila; *rat,* Calayan.

Calayan (*McGregor*); Luzon (*Heriot, Whitehead, McGregor*); Mindanao (*Mearns, Goodfellow*); Mindoro (*Bourns & Worcester*); Sulu (*Guillemard*); Tablas (*Bourns & Worcester*). Japan, China, Korea, Indo-Chinese countries, Indian Peninsula; Malay Peninsula and islands to Australia in winter.

"*Adult male.*—Above earthy brown, slightly tinged with rufous, more especially on the scapulars; wing-coverts clay-brown, greater series rather paler on the edges; edge of wing white; alula, primary-coverts, and quills black, slightly shaded with ashy; inner secondaries brown, tinged with rufous; lower back, rump, and upper tail-coverts ashy gray, the last somewhat darker; tail-feathers black; crown and nape black; sides of face, ear-coverts, and sides of neck vinous, becoming chestnut on the long frill-like feathers of the latter; throat white, mesially streaked with yellowish buff, like the rest of under surface; thighs more tawny-rufous; lower abdomen and under tail-coverts white; on each side of upper breast a patch of dependent feathers, of a blackish ground with yellowish-buff margins; under wing-coverts and axillars pure white; quills slaty below, with paler gray at the ends. 'Eyelids and facial skin green; upper mandible dark brown on the culmen, and pinkish brown on the margins; lower mandible pinkish brown, turning to green towards the tip; the toes and tibio-tarsal joint pale yellow; tarsus dull flesh-color; claws horn-color; iris yellow.' (*Oates*). Length, 394; culmen, 51; wing, 124; tail, 38; tarsus, 44.

"*Adult female.*—Differs from the male in being more rufous above, the feathers of the upper surface being rufous-brown with yellowish-buff margins; the crown is black as in the male, the ear-coverts and sides of the face are yellowish buff, and the neck-frill is also washed with the latter color; the under surface of the body the same as that of the male, but having the mesial lines more strongly indicated by tawny-buff centers to the feathers of the throat and fore neck. 'Upper mandible dark brown, lower one greenish yellow; feet greenish yellow.' (*Butler.*) Length, 394; culmen, 53; wing, 132; tail, 41; tarsus, 51.

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* Cf. Allen, *Bull. Am. Mus. Nat. Hist.* (1907), **24**, 36.

"*Young.*—Similar to the old female and streaked in the same manner, but distinguished by having wing-coverts broadly centered with dark brown; crown streaked instead of being uniform; feathers black with yellowish buff margins, and under surface of body much more distinctly streaked, centers of the feathers being dark brown on throat and fore neck; flank-feathers also streaked with brown." (*Sharpe.*)

"Extremely abundant about Lake Naujan, in Mindoro. It comes out on the mud flats to feed, but promptly takes refuge among the reeds if disturbed." (*Bourns and Worcester MS.*)

150. **IXOBRYCHUS CINNAMOMEUS** (Gmelin).

CINNAMON BITTERN.*

Ardea cinnamomea GMELIN, Syst. Nat. (1788), **1**, pt. 2, 643.

Ardetta cinnamomea SHARPE, Cat. Birds Brit. Mus. (1898), **26**, 236; Hand-List (1899), **1**, 203; BLANFORD, Fauna Brit. Ind. Bds. (1898), **4**, 402, fig. 98 (head); OATES, Cat. Birds' Eggs (1902), **2**, 132; MCGREGOR and WORCESTER, Hand-List (1906), 35.

Ba-caú ca-né-lo, Manila.

Bohol (*McGregor*); Catanduanes (*Whitehead*); Cebu (*Bourns & Worcester*); Guimaras (*Steere Exp.*); Leyte (*Everett*); Luzon (*Everett, Whitehead, McGregor*); Marinduque (*Steere Exp.*); Mindanao (*Everett, Steere Exp., Bourns & Worcester*); Mindoro (*Steere Exp., Everett, Bourns & Worcester, McGregor, Porter*); Palawan (*Bourns & Worcester*); Panay (*Steere Exp., Bourns & Worcester*); Samar (*Whitehead*); Sibuyan (*McGregor*); Tablas (*Bourns & Worcester*); Tawi Tawi (*Bourns & Worcester*); Ticao (*McGregor*). China, Eastern Siberia, Indian Peninsula, Indo-Malayan subregion; Celebes in winter.

"*Adult male.*—Entirely cinnamon-rufous above, including wings and tail; sides of face and ear-coverts cinnamon-rufous; cheeks a little lighter rufous; throat ashy white, with a median streak of tawny-rufous, which extends down throat and fore neck, being streaked with blackish longitudinal marks on the outer webs of the feathers; lower throat, fore neck, breast, sides of body, and thighs tawny-rufous; abdomen white; under tail-coverts tawny-buff; on sides of upper breast a patch of dependent feathers, having black centers with tawny-buff or rufous margins; under wing-coverts tawny-buff; axillars and under surface of quills pale chestnut. 'Eyelids and facial skin reddish purple; bill nearly all yellow, the culmen alone being dark brown; legs and toes yellowish green; claws brown; iris yellow to pale red.' (*Oates.*) Length, 279; culmen, 46; wing, 140; tail, 41; tarsus, 48.

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* Stejneger, Proc. U. S. Nat. Mus. Wash. (1887), **10**, 289, places this species in his subgenus *Nannocnus* and gives the following key:

a^1. Tibiæ feathered nearly to the heel-joint; longest tail-feathers longer than middle toe without claw (*Ardetta*)........ **A. sinensis**

a^2. Tibiæ naked at the lower end, longest tail-feathers shorter than middle toe without claw (*Nannocnus*).

  b^1. Quills and tail-feathers blackish........ **A. eurhythma**

  b^2. Quills and tail-feathers cinnamon-rufous........ **A. cinnamomea**

The characters of *Nannocnus* seem to be, as stated by Stejneger, of no more than subgeneric value.

"*Adult males in winter* appear to be a little more dingy on the upper parts than in summer, the head and back being shaded with grayish brown.

"*Adult female.*—Mantle and back uniform dark brown; wing-coverts dingy brown, but mottled with sandy-buff margins and checkered notches, which appear also on scapulars and inner secondaries, and have also subterminal markings of darker brown on many of the coverts; greater coverts, primary-coverts, and quills chestnut, with a good deal of dusky at base and on the inner webs, primary-coverts also dusky towards the ends; tail-feathers dull chestnut; crown and nape dusky brown; frilled feathers on the sides of neck brown in the center, with yellowish margins; sides of face yellowish buff, streaked with brown; whole of the under surface yellowish buff, very thickly streaked with dark brown, sides of throat whiter, feathers composing the broad mesial streak down the middle of throat and fore neck having a distinct rufous shade; on each side of the upper breast a patch of dependent plumes, black in the center with yellowish-buff margins; thighs chestnut; under wing-coverts yellowish buff like the chest; axillars and quill-lining dull chestnut, the feathers with a good deal of gray in them. 'Facial skin, margins of upper mandible, and nearly the whole of the lower mandible yellow, remainder of bill black; back of tarsus and soles yellow; claws yellowish brown; iris yellow.' (*Oates.*) Length, 330; culmen, 51; wing, 136; tail, 43; tarsus, 44.

"*The young birds* are very like the female, as determined by Mr. Oates and myself, but the whole back is variegated with yellowish-buff spots and markings, as well as the wings, so that the uniform brown mantle is a sign of the adult female, and the spotted mantle of a young bird. Mr. Everett gives the soft parts of a young female as follows: 'Legs and feet bright olive-green; bill greenish yellow at base, the culmen of a dark olive-brown tint; iris golden yellow.'

"Considerable variation in the tint of the cinnamon plumage of this species is observable in a series, and specimens from more southern localities are decidedly the darker and richer in color." (*Sharpe.*)

Genus NANNOCNUS Stejneger, 1887.

Very similar to *Ixobrychus* but the lower part of tibia unfeathered and the quills and tail-feathers blackish.

151. NANNOCNUS EURHYTHMUS (Swinhoe).

SCHRENCK'S BITTERN.

Ardetta eurhythma SWINHOE, Ibis (1873), 74, pl. 2; MEYER and WIGLESWORTH, Birds of Celebes (1898), **2**, 856, pl. 45.

Nannocnus eurythmus SHARPE, Cat. Birds Brit. Mus. (1898), **26**, 242; Hand-List (1899), **1**, 203; OATES, Cat. Birds' Eggs (1902), **2**, 133; MCGREGOR and WORCESTER, Hand-List (1906), 35.

Mindanao (*Bourns & Worcester*); Negros (*Keay*). Eastern Siberia, China, Japan, Borneo, Celebes.

"*Adult male.*—Above chestnut-brown; lesser wing-coverts and feathers round bend of wing also chestnut-brown; alula-feathers chestnut, outer ones blackish internally, with white on the outer margins; remainder of wing-coverts olive-clay-color, ashy near the ends of the feathers, innermost greater-coverts chestnut like scapulars; innermost secondaries also washed with chestnut, remainder of quills and primary-coverts ashy brown, paler at the tips, which are fringed with whitish, the first primary margined with ocherous; tail dark brown; crown and nape dusky brown; sides of face, ear-coverts, and neck-frill maroon; a broad band of white running from the middle of the cheeks down the sides of the neck; fore part of cheeks, throat, and under surface of body ocherous-buff; under tail-coverts, under wing-coverts, and axillars white; on the throat some slight indications of longitudinal dusky spots; feathers of the fore neck elongated; on each side of chest a patch of black feathers with ocherous margins. 'Bill blackish brown on culmen, yellowish brown on the rest, darker on the sides of upper mandible near tomia, light on sides of lower and on gonys; cere and bare skin round eye purplish flesh-color, ringed with green; legs and toes grass-green, yellow near the tarso-tibial joint and on the under surface of the tarsus; soles clay-colored; claws light yellowish brown; iris straw-color.' (*Swinhoe.*) Length, 305; culmen, 50; wing, 150; tail, 39; tarsus, 51.

"*Adult female.*—Different from the male. Dusky reddish brown, spotted all over with ocherous-buff, the feathers externally spotted or notched with this color; wing-coverts like the back, but largely edged and spotted with ocherous; head like the back; sides of face dull chestnut, with a band of white from the hinder cheeks down the sides of the neck; under surface of body ocherous-buff, plentifully streaked with blackish brown, tinged with rufous; the lower abdomen and under tail-coverts whiter; under wing-coverts deep ocherous, with ashy bases; a patch of brown feathers at the sides of the breast, all edged with ocherous. Length, 305; culmen, 49; wing, 140; tail, 29; tarsus, 48.

"*Young.*—Like the old female, but blackish brown above, the wing-coverts maroon-chestnut, and all the upper parts spotted with white instead of ocherous. 'Bill bright yellow, tinged with green; culmen black; feet yellowish green; iris golden yellow.' (*Everett.*)" (*Sharpe.*)

"A single specimen secured by us while with the Steere Expedition has been identified by Grant as *Ardetta eurythma.*" (*Bourns and Worcester MS.*)

Genus DUPETOR Heine and Reichenbach, 1890.

This genus appears to be very near *Ixobrychus* but it may be recognized by the blackish or slate-colored upper parts.

152. **DUPETOR FLAVICOLLIS** (Latham).

BLACK BITTERN.

Ardea flavicollis LATHAM, Index Ornith. (1790), **2**, 701.

Dupetor flavicollis SHARPE, Cat. Birds Brit. Mus. (1898), **26**, 247; Hand-List (1899), **1**, 203; OATES, Cat. Birds' Eggs (1902), **2**, 133; MCGREGOR and WORCESTER, Hand-List (1906), 36.

Cebu (*Bourns & Worcester*); Luzon (*Heriot*); Marinduque (*Steere Exp.*); Mindanao (*Everett, Steere Exp., Goodfellow*); Negros (*Keay*). Celebes, Ceylon, Malay and Indian Peninsulas, Indo-Chinese countries, Greater Sunda Islands, southern and central China.

"*Adult male.*—Above dark slaty gray, feathers of back and scapulars somewhat pointed and with a slight hoary gloss; wings and tail blackish, glossed with slate-color on the coverts, and with green on some of the latter and on the quills; crown and crest-plumes slaty gray; sides of face and cheeks black, the latter slightly mottled with rufous; from the hinder part of the cheeks a band of golden straw-color runs down the sides of the neck, the lower feathers being elongated; throat and fore neck prettily variegated with chestnut, black, and white, the chestnut predominating on the outer webs of the feathers and the white on the inner webs, with a longitudinal streak of black at the end of the latter, the long overlapping feathers on the sides of the chest being slaty gray with white margins, so that the general appearance of the throat and chest is streaked; remainder of under surface of body slaty gray, including the under wing-coverts, axillars, and quill-lining. 'Bill dusky reddish brown, lighter below; facial skin purplish brown; eyelids bluish; feet dark brown; claws dark horn-color; iris golden brown or pale red.' (*Oates*). Length, 508; culmen, 84; wing, 203; tail, 63; tarsus, 67; middle toe with claw, 76.

"*Adult female.*—Does not differ from the male. Length, 508; culmen, 31; wing, 203; tail, 68; tarsus, 66; middle toe with claw, 74.

"The slaty gray shade in the plumage appears to be a sign of the breeding season, as some of the winter specimens are black with a greenish gloss on the upper surface.

"*Young birds* are much browner than the adults, and can immediately be recognized by their more freckled appearance, the feathers of the upper surface having ochraceous margins. The mottling of the rufous on the neck is much as in the adult birds but there is more white and less rufous, and the chest-feathers are much more broadly edged with white; the breast is dusky brown as well as the sides of the body; the abdomen is white; the sides of the face and ear-coverts are chestnut, with a little streak of white at the base of the mandible.

"*Nestling.*—Similar in color to the young bird described above, but very much shaded with rufous, and having a great deal of rufous on the sides of the face; the crown covered with down of an ocherous color, the throat and chest very rufous." (*Sharpe.*)

Genus BOTAURUS Stephens, 1819.

The genus *Botaurus* is distinguished by its large size, comparatively short and stout bill and heavy legs; culmen much less than tarsus, the latter less than middle toe with claw; secondaries and scapulars nearly or quite as long as primaries.

153. **BOTAURUS STELLARIS** (Linnæus).

COMMON BITTERN.

Ardea stellaris LINNÆUS, Syst. Nat. ed. 10 (1758), **1**, 144.

Botaurus stellaris SHARPE, Cat. Birds Brit. Mus. (1898), **26**, 253; Hand-List (1899), **1**, 204; BLANFORD, Fauna Brit. Ind. Bds. (1898), **4**, 405, fig. 99 (head); OATES, Cat. Birds' Eggs (1902), **2**, 134; MCGREGOR, Bur. Government Laboratories (1905), **34**, 29; MCGREGOR and WORCESTER, Hand-List (1906). 36.

Luzon (*Babbitt*). Temperate Palaearctic region, northwestern India, Burma, China.

"*Adult male.*—Above tawny-yellow and black, the latter predominating and occupying the center of the feathers, the sides of which are tawny-buff, freckled and irregularly barred with black; lower back, rump, and upper tail-covers pale tawny-buff, mottled with bars or cross-lines of dusky brown; marginal wing-coverts rufous, regularly barred across with black; median and greater coverts tawny-buff, with irregular bars or arrow-shaped markings of blackish brown, much less pronounced on the greater coverts, all of which have a rufescent tinge near the base; alula, primary-coverts, and quills blackish, barred with rufous, the bars somewhat broken up on the inner webs of the quills, which are also paler; the inner secondaries like the scapulars, being tawny-buff on their edges and mottled in a similar manner; tail-feathers tawny-buff, irregularly mottled with black bars or cross-markings, more pronounced on the middle of the feathers; crown of head uniform black, with a frill of erectile plumes on the nape, these being tipped with tawny-buff, and the pale tips crossed with lines of black; eyebrow, sides of face, and sides of the neck tawny-buff, the eyebrow uniform except on the under edge, where the feathers are barred with black; ear-coverts scarcely marked at all, but the plumes of the sides of the neck narrowly barred with black, and elongated into a frill which covers the hind neck, the latter being clothed in dense down of a tawny-buff-color; the feathers below the eye, and a streak along the cheeks and down the sides of the neck, black; malar line of feathers and throat creamy white, with a central line of reddish buff feathers slightly mottled with black bases; the lower throat also creamy white, with four or five tolerably defined broad lines of tawny-buff and black-mottled feathers; the lower part of the ruff on the fore neck with narrow wavy lines of black; the breast covered with down of a tawny-buff-color, and hidden by a large patch of loose plumes on each side of the chest, which are mostly black with tawny-buff margins; remainder of under surface creamy white, streaked with black centers to the feathers, the black markings slightly broken up with mottlings of tawny-buff; thighs and under tail-coverts with scarcely any markings whatever; under wing-coverts and axillars tawny-buff, the former narrowly lined with blackish, the axillars more distinctly barred with dusky blackish. 'Bill greenish yellow; legs and feet yellowish green; claws dark brown; iris yellow; bare space before the eye yellowish green.' (*Seebohm.*) Length, about 610; culmen, 69; wing, 330; tail 112; tarsus, 96.

"Two of the three specimens collected by Mr. Robert Bergman at Yokohama are apparently young birds and have the primary-coverts and quills almost uniform, with a certain amount of rufous mottlings confined to the inner webs; in this state of plumage *B. stellaris* has a great resemblance to *B. pœciloptilus* but is always to be distinguished from the last-named bird by the tawny-colored frill on the sides of the neck, instead of the smoky brown one peculiar to the Australian bird." (*Sharpe.*)

Order ANSERIFORMES.

DUCKS AND GEESE.

Bill stout, compressed at base, flattened at tip, which is blunt or rounded or rarely spatulate (*Spatula*), and covered with soft, leathery membrane except the hard overhanging "nail" at tip; nostril from subbasal to subterminal, open and usually oval; neck small and usually long; body compact, heavy, flattened, densely covered with short feathers; wings stiff, strong, and rather pointed; tail usually short and rounded and fairly stiff, never forked and but rarely long and pointed (*Dafila*); legs short; toes stout and palmate; hind toe simple or lobate. Eggs six to one dozen or more, white, cream-color, or light buff; nest usually lined with down from the breast of the old bird; young covered with down and able to swim at birth.*

Family **ANATIDÆ.**

Characters same as those given for the Order.

Subfamilies.

a^1. Smaller; culmen less than 25 mm.; throat, breast, and abdomen white. **Plectropterinæ** (p. 185)

a^2. Larger; culmen more than 32 mm.; throat, breast, and abdomen not uniform in color.

  b^1. Head, neck, and breast not of a uniform color; no occipital crest. **Anatinæ** (p. 187)

  b^2. Head, neck, and breast brownish black, in adult male glossy black; adult male with a pointed occipital crest............ **Marilinæ** (p. 197)

Subfamily PLECTROPTERINÆ.

Genus NETTAPUS Brandt, 1836.

Members of this genus are distinguished by their small size and short stout bill.

154. NETTAPUS COROMANDELIANUS (Gmelin).

INDIAN DWARF GOOSE.

Anas coromandeliana GMELIN, Syst. Nat. (1788), **1**, pt. 2, 522.

Nettopus coromandelianus SALVADORI, Cat. Birds Brit. Mus. (1895), **27**, 68; BLANFORD, Fauna Brit. Ind. Bds. (1898), **4**, 433, fig. 110 (head); SHARPE, Hand-List (1899), **1**, 209; OATES, Cat. Birds' Eggs (1902), **2**, 144; MCGREGOR and WORCESTER, Hand-List (1906), 36.

Pa-ti-kí, Manila.

Luzon (*Zelebor*, *Worcester*, *McGregor*). Indian Peninsula, Burmese countries, Greater Sunda Islands, China, Celebes.

"*Adult male in summer.*—Forehead, crown, and nape hair-brown, the former darkest; remainder of head, whole neck, and lower plumage white; a broad collar round the neck black in front, glossy green behind; white of breast produced round the neck and forming another collar below the black one; back, scapulars, rump, tertiaries, and wing-coverts deep glossy green; secondaries glossy green, broadly tipped with white; primaries dark brown on the basal halves, then white with the tip black; under wing-coverts greenish black; upper tail-coverts white freckled with brown; under tail-coverts dark brown mottled with white; sides of the body vermiculated with brown. 'Bill black; iris bright red; legs, toes, and webs black, sides of tarsus and toes dusky yellow; claws horny brown.' (*Oates.*) Length, 330; wing, 165; tail, 76; culmen, 23; tarsus, 25.

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* All of the species of ducks here enumerated, except *Marila marila*, are represented in the Bureau of Science collection by specimens taken in the Philippine Islands, but with the exception of the abundant *Dendrocygna arcuata* these are adults only, in winter plumage. I have constructed keys and diagnoses from this material but for detailed descriptions I have depended almost entirely upon Salvadori's monograph in volume 27 of the Catalogue of Birds in the British Museum.

"*Female.*—Forehead and a supercilium dirty white; crown and nape dark brown; lores and line through eyes blackish; remainder of head, the whole neck, and upper breast dull white, mottled with brown, the marks on breast and hind neck becoming well-defined wavy lines; lower plumage dull white, streaked and distinctly barred with brown; whole upper surface, wings, and tail brown; secondaries tipped with white and inner primaries also more narrowly tipped with white; upper tail-coverts white, freckled with brown; under wing-coverts brown, each feather margined with white. 'Bill brown above, yellowish below; iris brown; legs and toes greenish yellow.' (*Oates.*) Size a trifle less than the male.

"*Male in winter.*—Similar to the female, but always retains the conspicuous white patch on the primaries.

"*Young.*—'Similar to the female till the first spring.' (*Oates.*)

"*Young in down.*—Upper parts, flanks, and under tail-coverts blackish brown; a broad superciliary stripe, cheeks, throat, front neck, and breast white; a broad line through the eyes; two broad white spots on each side of back, one near the base of wings, and the other, much longer, on the sides of the rump; feathers of tail blackish, very long, and stiff." (*Salvadori.*)

A male collected near Anao, Tarlac Province, Luzon, March 14, 1904, measured, 290 in length; wing, 165; tail, 68; culmen from frontal feathers, 21; tarsus, 27; middle toe with claw, 42. A female from the same locality and of the same date measured: Length, 290; wing, 165; tail, 66; culmen from frontal feathers, 22; tarsus, 23; middle toe with claw, 39.

"The eggs of the Indian dwarf goose, or 'cotton teal,' are generally truly ellipical in form, occasionally compressed at the smaller end, very smooth and glossy, and cream-color. They measure from 39 to 44 in length and from 30 to 35 in breadth." (*Oates.*)

This little bird is the only species of goose so far recorded from the Islands; it occurs on the Laguna de Bay and a few specimens were secured in Tarlac Province, Luzon. Oates lists three eggs of this species as having been collected in Siquijor by the Steere Expedition but Steere does not mention the species. A large goose has been reported as occurring in the northern part of Luzon but no specimen has been taken.

Subfamily ANATINÆ.

Genera.

- *a*¹. Bill not spatulate.
  - *b*¹. Central tail-feathers not greatly lengthened.
    - *c*¹. No wing-speculum; lower portion of tarsi with small reticulate scales in front .... **Dendrocygna** (p. 187)
    - *c*². Wing-speculum present; lower portion of tarsi with transverse scutella in front.
      - *d*¹. Larger; bill broader; culmen more than 50 mm.
        - *e*¹. Bill uniform blackish........ **Anas** (p. 189)
        - *e*². Bill with a broad yellow band at the tip........ **Polionetta** (p. 190)
      - *d*². Smaller; bill narrower; culmen less than 45 mm.
        - *e*¹. Larger; wing more than 230 mm........ **Mareca** (p. 191)
        - *e*². Smaller; wing less than 215 mm.
          - *f*¹. Secondary-coverts brown; greater part of head and neck chestnut in adult .... **Nettion** (p. 192)
          - *f*². Secondary-coverts blue-gray; head and neck not chestnut. **Querquedula** (p. 195)
  - *b*². Central tail-feathers greatly lengthened........ **Dafila** (p. 194)
- *a*². Bill flattened and spatulate........ **Spatula** (p. 196)

Genus DENDROCYGNA Swainson, 1837.

General color largely blackish and reddish or yellowish brown; breast more or less spotted; no bright colored speculum nor white wing-patch; inner web of first primary deeply scooped near its middle; next three quills slightly emarginate.

Species.

- *a*¹. Wing-coverts deep chestnut.
  - *b*¹. Fore part of head white........ **viduata** *
  - *b*². Fore part of head brown; breast rufous-chestnut with small black spots. **arcuata** (p. 187)
- *a*². Wing-coverts blackish brown; breast and sides marked with round white spots .... **guttulata** (p. 189)

155. DENDROCYGNA ARCUATA (Horsfield).

WANDERING TREE DUCK.

Anas arcuata Horsfield, Zool. Res. in Java (1822), pl. 65.

Dendrocycna arcuata Salvadori, Cat. Birds Brit. Mus. (1895), **27**, 153; Oates, Cat. Birds' Eggs (1902), **2**, 158.

Dendrocygna arcuata Sharpe, Hand-List (1899), **1**, 214; McGregor and Worcester, Hand-List (1906), 37.

Ba-li'-uis, Luzon; *ná-ga*, Ticao; *ga-kit'*, Bohol.

Bantanyan (*McGregor*); Basilan (*Steere Exp., McGregor*); Bohol (*Everett, McGregor*); Camiguin N. (*McGregor*); Catanduanes (*Whitehead*); Cebu (*Everett*); Guimaras (*Steere Exp.*); Leyte (*Everett*); Luzon (*Cuming, Worcester,*

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* The white-faced tree duck, *Dendrocygna viduata* (Linnæus), has been recorded as a Philippine species; I believe it should be omitted from our list.

McGregor); Masbate (*Bourns & Worcester*); Mindanao (*Everett, Bourns & Worcester*); Mindoro (*Bourns & Worcester, McGregor*); Negros (*Clarke MS.*)*; Panay (*Bourns & Worcester*); Samar (*Jagor, Steere Exp., Whitehead*); Sibuyan (*McGregor*); Siquijor (*Steere Exp., Bourns & Worcester, Celestino*); Ticao (*McGregor*). Indo-Malayan Islands. Moluccas, Celebes, New Guinea, Australia, Oceania.

"*Adult male and female.*—Upper part of head and a line down back of neck brown-black; sides of head and neck pale fulvous; throat almost white; back and scapulars black, with the edges bright rufous-chestnut, on upper back the black part of the feathers with rufous spots or bars; rump black; median upper tail-coverts black, lateral ones buffy white, more or less spotted with black; breast pale rufous, each feather with black dots or crescent-like spots in the middle, and shading into the bright rufous-chestnut of abdomen; lower abdomen and under tail-coverts whitish buff, the latter uniform, but the abdomen with brown spots; feathers of flanks with broad mesial buffy white streaks, edged with black; lesser and median wing-coverts bright chestnut, the greater ones, quills, and tail black. Iris brown; bill blackish or dark ashy; tarsi and feet dark ashy. Length, about 432; wing, 216; tail, 71; culmen, 43; tarsus, 47." (*Salvadori.*)

A male from Sevilla, Bohol, March 22, 1906, measures: Length, 424; wing, 188; tail, 56; exposed culmen, 41; tarsus, 45; middle toe with claw, 71.

A female of the same locality and date measures: Length, 424; wing, 175; tail, 58; exposed culmen, 42; tarsus, 46; middle toe with claw, 66.

A young bird from Taguig, Laguna de Bay, January 12, 1902, (length of skin 305 mm.) has upper parts covered with dark gray down and lower parts covered with white down; on crown, scapulars, breast, sides, and flanks the feathers of the adult dress are more or less developed.

"The eggs of the wandering tree duck in the collection are almost elliptical in shape, one end being very slightly compressed. They are cream-colored and have a fair amount of gloss. Four specimens measure respectively: 52 by 38; 48.2 by 35.5; 47.4 by 38; 48.2 by 36.3." (*Oates.*)

"Common in favorable localities throughout the islands. Frequently met with in very large flocks. Found breeding in the Island of Siquijor in the month of February." (*Bourns and Worcester MS.*)

This tree duck is usually found in large flocks on lakes and fresh-water marsh-land. When flushed the flock circles about and generally the birds can be killed without the precautions which are usually necessary in duck-shooting. A hard-shelled egg was taken from a bird killed on the Laguna de Bay in January. Oates records two eggs collected by Moseley in May.

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* Mr. W. Eagle Clarke informs us that he has received a specimen of this duck from Negros.

156. **DENDROCYGNA GUTTULATA** Wallace.

SPOTTED TREE DUCK.

Dendrocygna guttulata WALLACE, Proc. Zool. Soc. (1863), 36; SHARPE, Hand-List (1899), 1, 215; McGREGOR and WORCESTER, Hand-List (1906), 37.

Dendrocygna guttata SALVADORI, Cat. Birds Brit. Mus. (1895), 27, 164, pl. 1.

Basilan (*McGregor*); Mindanao (*Platen*). Celebes, Moluccas, New Guinea, Tenimber Islands.

"*Adult male and female.*—Upper part of head dark brown; a black line along hind neck; back and wings dusky brown; feathers of back, scapulars, and wing-coverts edged with pale brown; lores brown; superciliary stripe, sides of head, and upper part of neck grayish, with dusky cross-lines, giving a mottled appearance; chin and throat uniform whitish; lower part of neck dusky with white spots; rump brown; upper tail-coverts black, basal ones broadly barred with white; upper breast rufous-brown, each feather with a white spot at the tip; lower breast and abdomen whitish, with faint dusky lines across; feathers of flanks with large, white, round spots, the longer feathers are almost barred with black; under tail-coverts whitish, with black bars; quills brown; tail almost black. 'Bill black; tarsi and feet ashy, more or less tinged with reddish; iris brown or chestnut.' (*D'Albertis.*) Length, about 432; wing, 215; tail, 74; culmen, 41; tarsus, 41.

"'*Young.*—Feathers of the flanks paler and with the white spots elongated and lanceolated.' (*Schlegel.*)" (*Salvadori.*)

A male from Basilan, December 26, 1906, measures: Length, 444; wing, 216; tail, 67; exposed culmen, 45; tarsus, 45; middle toe with claw, 71.

Of the earlier collectors Platen was the only one to secure this tree duck in the Philippines; more recently it has been taken in Basilan but it appears to be a rare species.

Genus ANAS Linnæus, 1758.

Bill of moderate length, the sides nearly parallel; wings long and pointed; a wide band of metallic color across the secondaries forming the speculum; tail pointed but not of great length.

157. **ANAS LUZONICA** Fraser.

PHILIPPINE MALLARD.

Anas luzonica FRASER, Proc. Zool. Soc. (1839), 113; SALVADORI, Cat. Birds Brit. Mus. (1895), 27, 205; SHARPE, Hand-List (1899), 1, 216; McGREGOR and WORCESTER, Hand-List (1906), 37.

Du-ma-ras', Manila; *da-mu-l'og*, Ticao.

Catanduanes (*Whitehead*); Guimaras (*Steere Exp.*); Lubang (*McGregor*); Luzon (*Cuming, Jagor, Heriot, Whitehead, McGregor, Worcester*); Marinduque

(*Steere Exp.*); Masbate (*Bourns and Worcester*); Mindanao (*Mearns*); Mindoro (*McGregor*); Panay (*Bourns & Worcester*); Samar (*Whitehead*); Siquijor (*Steere Exp.*); Ticao (*McGregor*).

"*Adult male and female.*—General plumage brownish gray, almost uniform, without any dark markings in the center of the feathers; upper part of head and upper part of nape blackish brown; superciliary stripe, sides of head, throat, and sides of upper part of neck rufous; a blackish brown band runs across the eyes from lores to occiput; back dark gray, changing into brown on rump and upper tail-coverts; wing-speculum glossy green, bounded anteriorly by a velvety black band at the tip of greater wing-coverts and by a narrower white one at the tip of the last row of median upper wing-coverts; posteriorly the speculum is bounded by a velvety black, subapical band, and by a narrow, apical, white band; under wing-coverts and axillars white; under parts brownish gray, deepening into brown on under tail-coverts; tail brown; colors of the bill and feet not recorded, but apparently dark olive. Length, about 500; wing, 250; tail, 114; culmen, 51; tarsus, 43.

"*Young.*—Similar to the adults, only much paler on the head and throat, which are scarcely tinged with rufous; the speculum less bright, and with some purple reflections." (*Salvadori.*)

Iris brown; bill dark blackish blue, its nail black; legs and claws dark brown. A male from Luzon measures: Length, 635; wing, 262; tail, 114; exposed culmen, 51; bill from nostril, 40; tarsus, 43; middle toe with claw, 63.

The Philippine mallard does not often occur in large numbers; usually, however, it may be found in pairs in tide creeks, small ponds, or other suitable localities.

"We found this fine mallard to be rare in all the localities visited by us with the single exception of the region about the town of Milagros, on the west coast of the Island of Masbate. In the last-mentioned district it was very abundant, occurring in great flocks." (*Bourns and Worcester MS.*)

"Extraordinarily abundant on the Abulug River in northern Luzon in March, 1906. Flocks of twenty-five to two hundred were constantly met with on the lower river." (*Worcester.*)

Genus POLIONETTA Oates, 1899.

A wide yellow band across the tip of bill, otherwise like *Anas* from which it is scarcely separable.

158. **POLIONETTA ZONORHYNCHA** (Swinhoe).

ZONE-BILLED DUCK.

Anas zonorhyncha SWINHOE, Ibis (1866), 394; SALVADORI, Cat. Birds Brit. Mus. (1895), **27**, 211.

Polionetta zonorhyncha SHARPE, Hand-List (1899), **1**, 217; MCGREGOR and WORCESTER, Hand-List (1906), 37.

Calayan (*McGregor*). Eastern Siberia, Mongolia, China, Japan, Kurile Islands.

"*Adult male.*—Upper part of head and a broad stripe from lores through eyes to some distance behind them dark brown; superciliary stripe, sides of head, and throat whitish; from gape toward eyes a slightly indicated dusky band, formed by dusky streaks; upper parts brown, back and scapulars paler, with edges of feathers pale grayish; rump and upper tail-feathers uniform dark brown; lower part of fore neck and upper breast dull whitish buff, with centers of the feathers dusky; lower breast and abdomen almost uniform brown, deepening into black-brown on under tail-coverts; wings brown; speculum glossy blue, more or less with a green luster, bordered anteriorly and posteriorly by two velvety black bands; tips of the secondaries narrowly edged with white; tertials brown, with only the apical part of outer web white; tail brown, the edges of the feathers whitish. 'Bill black, with the apical portion, except the tip of the nail, yellow, no red spots at base; feet light bright red, the web slightly dusky; iris yellowish brown.' (*Holst.*) Length, about 580; wing, 295; tail, 117; culmen, 56; tarsus, 44.

"*Female.*—Smaller and paler, the feathers of the breast for a greater extension than in the male having broader whitish edges.

"*Young.*—Paler even than the female, with smaller dusky spots on the under parts; edges of upper wing-coverts pale; a broad subapical white band across the greater wing-coverts, and the outer web of tertials for the most part white." (*Salvadori.*)

On December 7, 1903, a dozen birds of this species were observed in Calayan. A female, the only specimen killed, measured 560 in length; wing, 267; tail, 99; exposed culmen, 53; bill from nostril, 42; tarsus, 44; middle toe with claw, 37. Bill jet-black with a broad tip of bright yellow; most of the nail black; iris tan-brown; legs and feet light salmon; nails black; webs dusky.

Genus MARECA Stephens, 1824.

Bill small, shorter than head, depressed and slightly narrowing toward tip, nail large; wings long and pointed.

159. **MARECA PENELOPE** (Linnæus).

EUROPEAN WIGEON.

Anas penelope LINNÆUS, Syst. Nat. ed. 10 (1758), **1**, 126.
Marcea penelope SALVADORI, Cat. Birds Brit. Mus. (1895), **27**, 227; SHARPE, Hand-List (1899), **1**, 218; OATES, Cat. Birds' Eggs (1902), **2**, 168; MCGREGOR and WORCESTER, Hand-List (1906), 37.

Basilan (*McGregor*); Calayan (*McGregor*); Luzon (*Worcester*); Mindanao (*Celestino*). Palaearctic Region from Iceland to Kamtschatka, in winter to Madeira, Abyssinia, Persia, northern India, Burma, China, Japan, Borneo; occurs as a straggler in the Marshall Islands and North America.

"*Adult male.*—Forehead and top of head buff, rest of the head and neck cinnamon, minutely spotted, especially round the eyes, with bottle-green; chin and throat more or less black; mantle, back, and scapulars gray, crossed with irregular zigzag lines of black; central tail-feathers paler, almost whitish; lateral tail-feathers like the under tail-coverts, black; lower fore neck and sides of breast vinaceous; middle of breast and abdomen white; sides, flanks, and under wing-coverts gray, with zigzag lines like the back; wing-coverts white, the largest tipped with black; primaries uniform dark brown; outer webs of secondaries green, forming a speculum, edged with black; black outer webs of secondaries broadly edged with white; tail-feathers elongated, pointed, and nearly black. Iris dark brown; bill bluish lead-color, tipped with black; legs, toes, and their membranes dark brown. Length, 457; wing, 267; tail, 117; culmen, 39; tarsus, 39.

"*Female.*—Head and neck pale reddish brown, speckled with blackish; upper parts brown, each feather with pale whitish edges; edges of scapulars reddish brown; breast and sides reddish brown; under surface white; under tail-coverts white, with irregular brown bars or spots; primaries dark brown, secondaries dull black, slightly tipped with white; wing-coverts like back, but the larger ones tipped with white; tail dull grayish brown. Iris brown; bill bluish black.

"*Young male.*—Resembles more or less the female." (*Salvadori.*)

A male taken in Calayan in November measures: Length, 840; wing, 260; tail, 104; exposed culmen, 37. A specimen from Basilan is in very poor plumage.

Genus NETTION Kaup, 1829.

The members of this genus differ from *Anas* chiefly in being of smaller size and in having the bill narrower and shorter.

160. **NETTION CRECCA** (Linnæus).

EUROPEAN TEAL.

Anas crecca LINNÆUS, Syst. Nat. ed. 10 (1758), **1**, 126.
Nettion crecca SALVADORI, Cat. Birds Brit. Mus. (1895), **27**, 243; MCGREGOR and WORCESTER, Hand-List (1906), 38.
Nettium crecca BLANFORD, Fauna Brit. Ind. Bds. (1898), **4**, 443, fig. 114 (head); SHARPE, Hand-List (1899), **1**, 218; OATES, Cat. Birds' Eggs (1902), **2**, 169.

Calayan (*McGregor*); Luzon (*Whitehead*); Mindoro (*? Platen*). Palaearctic Region, wintering in northern Africa, in Arabia, Persia, India, Ceylon, Burmah, China and Japan; accidental in Greenland and eastern United States.

"*Adult male.*—Head and upper neck chestnut; a glossy green patch on each side of the head from the eyes backward to upper nape; a narrow buffy line from the gape upward along the base of the upper mandible and from thence to the eye, bordering above and below the anterior part of the green patch; chin black; hind neck, back, and scapulars with narrow gray and black wavy lines; outer scapulars buff, broadly edged with black on the outer web; upper tail-coverts black, edged with buffish brown; on the middle of the neck a collar of whitish and black cross-lines; breast and abdomen white, the former with round subapical black spots; sides and flanks waved with narrow black lines; central under tail-coverts velvet-black, the lateral ones of a buff-color, with a band of black at the base; upper wing-coverts lead-gray, the greater row whitish buff, darker toward the inner ones; wing-speculum on the secondaries velvety black, with a white apical band on the outer half, glossy green on the inner half; first tertial velvet-black on the outer web; primaries and tail-feathers grayish brown, the later with pale edges; under wing-coverts gray, edged with white, the central ones and the axillars wholly white. Bill nearly black; iris hazel; legs, toes, and membranes brownish gray. Length, 368; wing, 184; tail, 76; culmen, 40; tarsus, 28.

"*Female.*—General color of the upper parts dark brown, each feather with reddish brown edges; upper part of the head darker than the sides, which are whitish, thickly speckled with black; a black line behind the eyes; chin and throat whitish; the feathers of the back and scapulars with two, narrow, transverse, bars of buffy brown; under parts whitish, with a reddish tinge on the breast, each feather, except those of the belly, with obscure dark centers; wing as in the male but somewhat duller.

"*Young* in first plumage closely resembles the female, but the wing-coverts have pale edgings, and the dark centers of the feathers appear also on the belly.

"Males in molting plumage resemble the adult females.

" '*Nestling* yellowish white on under parts, buff on forehead and throat; a dark brown streak from the forehead to crown, which with the upper parts is brown; a dark loral streak, and two other streaks from behind eye to nape on each side.' (*Yarrell.*)" (*Salvadori.*)

Genus DAFILA Stephens, 1824.

This well-marked genus may be recognized by its elongate form, long neck, and long pointed middle tail-feathers.

161. DAFILA ACUTA (Linnæus).

PIN-TAIL DUCK.

Anas acuta Linnæus, Syst. Nat. ed. 10 (1758), **1**, 126.
Dafila acuta Salvadori, Cat. Birds Brit. Mus. (1895), **27**, 270; Blanford, Fauna Brit. Ind. Bds. (1898), **4**, 447, fig. 116 (head); Sharpe, Hand-List (1899), **1**, 219; Oates, Cat. Birds' Eggs (1902), **2**, 172; McGregor and Worcester, Hand-List (1906), 38.

Luzon (*Steere Exp., Bourns & Worcester, McGregor*). Northern Hemisphere, breeding in the northern parts; south in winter to northern Africa, India, Ceylon, China, and Japan and in America to Panama and Cuba.

"*Adult male.*—Head and upper neck plain hair-brown, darker on crown, and faintly glossed on sides of occiput with purple; upper half of hind neck black, with a white stripe on each side, confluent with the white of lower neck and breast; lower hind neck grayish brown; back, sides, and flanks waved with gray and dusky; upper tail-coverts black, the median broadly edged with gray; longer scapulars velvety black, edged with whitish; wing-coverts uniform brownish gray, the last row broadly tipped with cinnamon, producing a distinct bar; primaries brownish gray, darker toward the tip; speculum varying from dull metallic green to bronzy purple, tipped with white, and crossed by a subterminal bar of velvety black; inner quill of the speculum velvety black with a white band along the inner part of outer web; tertials gray, marked with a velvety black median stripe; abdomen whitish, dusted with gray, lower flanks with a buff tinge; under tail-coverts black, the outer ones white on the outer web; central tail-feathers long, acuminate, and black, remainder of tail-feathers dusky gray, edged with whitish. Bill blackish, with the sides dull lead-blue; feet grayish black; iris dark brown. Length, from 610 to 760; wing, 280; middle tail-feathers, 184 to 240; culmen, 47 to 55; tarsus, 39 to 47.

" '*Adult female.*—Above grayish dusky, varied with irregular bars of yellowish white or pale ochraceous; head and neck whitish buff, each feather, except on throat, streaked with blackish; lower parts dingy white, flanks, abdomen, and under tail-coverts streaked with dusky; wing brown, smaller wing-coverts tipped with whitish; greater wing-coverts and secondaries tipped with white, forming two white bars across the wing, but the space between them dull brown, mottled with black, without any metallic gloss of any kind.' (*Seebohm.*) Tail brown with oblique buffish spots or bars. Length, 533 to 597; wing, 244 to 256; middle tail-feathers, 114 to 127; culmen, 46 to 53; tarsus, 42.

"'*Young* in first plumage closely resembles adult females, but young males may always be distinguished by having an alar speculum.

"'*Males in first nuptial plumage* have pale margins to the wing-coverts, and most of the feathers of the rump are broadly barred, instead of finely vermiculated, with white.

"'*Adult males in molting plumage* may be distinguished from adult females by having an alar speculum, and being richer and darker in color.

"'*Young* in down have the same pale spots on the upper parts as those of the mallard, but the white on the throat and belly is slightly suffused with gray instead of buff, and in addition to the dark lines passing through the eye, a second dark line passes from the lores below the eye to the nape.' (*Seebohm.*)

"According to some ornithologists, European specimens differ very appreciably from North American in having a narrower speculum, but I have failed to find that there is any appreciable difference." (*Salvadori.*)

"Found in very large flocks on Manila Bay during January and February but wild and difficult to kill." (*Worcester.*)

Genus QUERQUEDULA Oken, 1817.

This genus is very much like *Nettion* but the bill is broader, and instead of being of the same width throughout, is wider toward the tip; the nail also is broader.

162. **QUERQUEDULA QUERQUEDULA** (Linnæus).

ASIATIC BLUE-WINGED TEAL.

Anas querquedula LINNÆUS, Syst. Nat. ed. 10 (1758), **1**, 126.
Querquedula circia SALVADORI, Cat. Birds Brit. Mus. (1895), **27**, 293; BLANFORD, Fauna Brit. Ind. Bds. (1898), **4**, 449, fig. 117 (head).
Querquedula querquedula SHARPE, Hand-List (1899), **1**, 220; OATES, Cat. Birds' Eggs (1902), **2**, 175; MCGREGOR and WORCESTER, Hand-List (1906), 38.

Calayan (*McGregor*); Luzon (*McGregor*). Northern Europe and northern Asia, wintering in northeastern Africa, Indian Peninsula, China, and Malay Archipelago.

"*Adult male.*—Upper part of head and occiput brown-black; from above eyes, on each side of head, a whitish band, extending to the sides of occiput; sides of head and upper part of neck chocolate-brown, streaked with white; chin black; back, rump, and upper tail-coverts blackish, each feather edged with grayish olive; scapulars elongated and pointed, black, with a central stripe of white; breast with brown and black crescentic bands, producing a scaly-like appearance; lower breast white; abdomen, sides, and flanks white, waved with narrow blue lines; longer feathers of the flanks bounded by a subapical white band, and a bluish gray band at the tip; sides of the rump and under tail-coverts whitish, with black spots; upper wing-coverts and outer scapulars bluish gray; wing-speculum on the secondaries glossy green, bounded anteriorly by a white band formed by the greater wing-coverts, and posteriorly by another white band at the tip of the secondaries; primaries and tail-feathers brown, the latter edged with whitish; under wing-coverts dark gray, the central ones, like the axillars, white. Bill black, iris hazel; legs, toes, and their membranes grayish brown. Length, about 406; wing, 197; tail, 70; culmen, 41; tarsus, 30.

"*Female.*—Upper parts dark brown, each feather with a pale margin; broad superciliary stripe whitish; a dusky band behind eyes; sides of head and neck whitish, streaked with black; chin and throat white; feathers of the lower fore neck blackish, with whitish edges; breast and abdomen white; sides, vent, and under tail-coverts white, with brown-black spots; wings grayish brown; a dull metallic green speculum, bounded anteriorly and posteriorly by two white bands; under wing-coverts brown, margined with white, the greater ones pure gray, the central ones, like the axillars, white. Size smaller than that of the male.

"*Young* in first plumage resemble the females, but are darker and more suffused with rufous on the breast.

" '*Adult males in molting plumage* closely resemble adult females, but are darker in color, and may be distinguished by the brighter alar speculum.' (*Seebohm.*)

" '*Downy nestling* resembles that of the mallard, but it is smaller, and has a broad unbroken buff streak above the eye, and a well-defined dark streak through the eye.' (*Yarrell.*)" (*Salvadori.*)

In immature plumage this species is likely to be confounded with *Netion crecca* and must be determined with care. The adult males of the two species are very different.

Genus SPATULA Boie, 1822.

This genus is characterized by the peculiar bill which is twice as wide near the tip as at the base; sides of upper mandible turned under near tip.

163. **SPATULA CLYPEATA** (Linnæus).

SHOVELER.

Anas clypeata LINNÆUS, Syst. Nat. ed. 10 (1758), **1**, 124.

Spatula clypeata SALVADORI, Cat. Birds Brit. Mus. (1895), **27**, 306; BLANFORD, Fauna Brit. India Bds. (1898), **4**, 452, fig. 118 (head); SHARPE, Hand-List (1899), **1**, 221; OATES, Cat. Birds' Eggs (1902), **2**, 177; MCGREGOR and WORCESTER, Hand-List (1906), 38.

Calayan (*McGregor*); Mindoro (*McGregor*); Luzon (*McGregor, Worcester*). North America, Europe, and western Asia; wintering in Africa, Arabia, Persia, Indian Peninsula, southern China, Hawaii, West Indies, and Central America to Colombia.

"*Adult male.*—Head and upper part of neck dark glossy green; lower neck, breast, and anterior scapulars white; middle of back dark brown, the feathers with pale edges; rump and upper tail-coverts black glossed with green; lower breast and abdomen rich chestnut; flanks, vent, and thighs paler, freckled with brown; under tail-coverts black, glossed with green; a white patch on the lower flanks at the base of the tail; upper wing-coverts and the outer web of two of the longer scapulars pale blue; remainder of the scapulars black, all with a broad silky white stripe along the middle; last row of wing-coverts tipped with white, forming a band, which borders anteriorly the glossy green wing-speculum; tip of the secondaries and the primaries brown; under wing-coverts and axillars white; tail mostly white, freckled with brown-gray, central feathers brown, edged with white. Iris yellow; bill lead-color; feet reddish orange. Length, about 508; wing, 260; tail, 95; culmen, 70; tarsus, 35.

"*Female.*—Upper parts brown, each feather with a broad reddish margin; throat reddish immaculate; feathers of back and scapulars with reddish bars, more or less crescentic; under parts reddish buff, each feather brown in the central part, especially those of breast and flanks; under tail-coverts lighter; wings resemble those of the male, except that the blue on the wing-coverts is very dull and the speculum not so glossy; tail-feathers whitish, with brown marks. Beak olive-brown, base of the maxilla and the entire mandible orange; iris hazel-brown; feet dull orange.

"*Male in first plumage* resembles the female, but the wings are brighter colored. Bill pale reddish brown; legs and feet flesh-color.

"*Males in their first nuptial plumage* have the white of the breast with a few dark crescentic bands, the lower belly with dark bars, and the rich black of the under tail-coverts mottled with chestnut and white.

"*Adult male in molting plumage* may be distinguished from the adult female by the greater brilliancy of the blue and metallic green on the wing, the plain dark upper tail-coverts, and the general darker color of the entire plumage; the crown is dark brown.

"*Young in down* resemble those of the wigeon in having the upper parts almost uniform, with indistinct pale spots, but they possess the dark brown stripe through the eye as in the young mallard. The bill is not widened at the tip, but it grows very rapidly." (*Salvadori.*)

This duck may be recognized in any plumage by the shape of its bill.

Subfamily MARILINÆ.

Genus MARILA Oken, 1817.

The members of this subfamily and genus differ from all other Philippine ducks in having a tuft of long feathers springing from the crown; the bill also is characteristic being short and wide and slightly wider at tip than at base.

Species.

a^1. Back finely vermiculated with white .... **marila** (p. 198)
a^2. Back uniform black or blackish brown .... **fuligula** (p. 199)

164. MARILA MARILA (Linnæus).

SCAUP DUCK.

Anas marila LINNÆUS, Fauna Suecica, ed. 2, (1761), 39.

Fuligula marila SALVADORI, Cat. Birds Brit. Mus. (1895), **27**, 355; SHARPE, Hand-List (1899), **1**, 223; OATES, Cat. Birds' Eggs (1902), **2**, 182; MCGREGOR, Phil. Jour. Sci. (1907), **2**, sec. A, 295.

Luzon (*Parsons*). Northern parts of Europe, Asia, and North America; wintering on the Mediterranean, Black, and Caspian Seas and in India, China, Japan, and Central America.

"*Adult male.*—Head, neck, upper part of breast and back black; sides of the head and upper neck glossed with green; rest of back and scapulars white, narrowly barred with black; rump, upper and under tail-coverts black; lower breast, abdomen, and sides white; vent somewhat grayish; sides with black barrings; upper wing-coverts blackish, finely vermiculated with white; secondaries white, forming the speculum, which is bounded below by a blackish band, in some specimens more or less freckled with white; tertials blackish with a green gloss, the largest ones more or less finely dusted with whitish; primaries grayish brown, from the fourth quill with a whitish area on inner web, tips black; marginal under wing-coverts grayish brown dusted with white, the remainder, as well as axillars, white; tail blackish. Bill and legs light lead-gray, webs and nail of bill blackish; iris yellow. Length, about 457; wing, 235; tail, 74; culmen, 46; tarsus, 35.

"*Female.*—Fore part of head and chin white; rest of head, neck, and breast brown; upper parts dark brown, back and scapulars slightly vermiculated with white, under parts white below the breast; flanks brown, more or less vermiculated with white; vent and under tail-coverts dark brown, slightly vermiculated with white; wings duller and browner than in the male, the upper wing-coverts much less vermiculated with white. Bill and legs darker than in the male. Size somewhat less.

"*Young male* has the white at base of bill like the adult female, but it is of a darker and richer color.

"*Male in first nuptial dress* has less green metallic gloss on head and neck; the black breast-feathers have white margins; the black under tail-coverts are more or less vermiculated; in the vermiculations of the lower mantlé, scapulars, and wing-coverts the dark brown predominates over the white.

"*Males in molting plumage* closely resemble adult females.

"*Young in down.*—'Crown, nape, and upper parts uniform dark olive-brown; throat, sides of head, and fore part of neck yellowish white;

a dull grayish band crosses lower neck, rest of under parts dull yellowish, flanks grayish yellow; upper mandible blackish, tooth of beak yellowish; under mandible yellow.' (*Dresser.*)" (*Salvadori.*)

165. MARILA FULIGULA (Linnæus).

TUFTED DUCK.

Anas fuligula LINNÆUS, Syst. Nat. ed. 10 (1758), **1**, 128.

Fuligula fuligula SALVADORI, Cat. Birds Brit. Mus. (1895), **27**, 363; SHARPE, Hand-List (1899), **1**, 223; OATES, Cat. Birds' Eggs (1902), **2**, 183; McGREGOR and WORCESTER, Hand-List (1906), 39.

Nyroca fuligula BLANFORD, Fauna Brit. Ind. Bds. (1898), **4**, 463; fig. 121 (head).

Dú-lum-pá-pa, Calayan.

Basilan (*Steere Exp.*); Calayan (*McGregor*); Luzon (*Heriot*, *Worcester*, *McGregor*); Palawan (*White*). Northern Asia; northern Europe; in winter to Greater Sunda, Marianne, and Pelew Islands; Mediterranean Sea; Abyssinia; northern Indian Peninsula; southern China.

"*Adult male.*—Head, neck, upper parts, and breast black; occipital feathers considerably elongated, forming a crest or tuft; sides of head with a purple gloss; a white spot on the chin; back and scapulars with obscure traces of pale vermiculations; lower breast, belly, sides, and flanks white; vent and under tail-coverts black; wings black; speculum on the secondaries white, with a black band at the tip; under wing-coverts, except the marginal ones which are dusky, and axillars white, primaries brown-gray, with the tips and the outer webs more or less blackish; tail black. Bill pale blue, with the nail black; iris brilliant golden yellow; legs and toes dark blue, the webs black. Length, about 432; wing, 203; tail, 63; culmen, 44; tarsus, 28.

"*Female.*—Crest smaller than in the male; upper parts and upper breast brown; under parts dull white or pale ashy brown, and less clearly defined from the brown upper breast; flanks brown; speculum as in the male; inner secondaries glossed with green.

"*Young in first plumage.*—Closely resemble adult females, but paler brown, especially on chin and throat; no metallic green gloss on the innermost secondaries; many white feathers at base of bill.

"*Males in first nuptial dress* have white margins to the black feathers of the breast, a shorter crest, no green or purple gloss on the head, and a small white spot on the chin.

"'*Males in molting plumage* are intermediate in color between males in first plumage and males in first nuptial plumage.

"'*Young in down* are dark brown, shading into nearly white on the belly.' (*Seebohm.*)" (*Salvadori.*)

The tufted duck visits the Philippine Islands during the winter months and at times may be found in large numbers; from Laguna de Bay, many live ducks are brought to the Manila markets, the present species ranking next in numbers to the common *Dendrocygna arcuata.*

Order PELECANIFORMES.

CORMORANTS, DARTERS, GANNETS, FRIGATE BIRDS, AND PELICANS.

Bill strong, either sharply pointed or hooked at tip; nostrils wanting or obsolete; neck moderate to very long; all the toes united by a web; chin naked and forming a more or less distensible pouch. Birds of large size, seagoing and fish-eating. The totipalmate feet and obsolete nostrils are the most obvious peculiarities of this order.* Eggs bluish or white, with a white chalky covering.

Families.

- a^1. Tail not forked; webs between toes entire or but slightly emarginate.
  - b^1. Bill subcylindrical; gular pouch small.
    - c^1. Bill strongly hooked.......... **Phalacrocoracidæ** (p. 200)
    - c^2. Bill sharply pointed.
      - d^1. Neck longer than body; bill slender, culmen nearly straight. **Anhingidæ** (p. 202)
      - d^2. Neck about one-half as long as body; bill heavy; culmen decurved for terminal fourth .... **Sulidæ** (p. 203)
  - b^2. Bill greatly flattened, widened near tip; gular pouch very large. **Pelecanidæ** (p. 208)
- a^2. Tail deeply forked; webs between toes deeply incised.......... **Fregatidæ** (p. 206)

Family PHALACROCORACIDÆ.

Bill long and heavy; basal portion of culmen slightly concave, tip strongly decurved and hooked; neck rather long; wings ample but not reaching beyond base of tail, the latter rather long, its feathers graduated and stiff; plumage largely black, at times partly white.

Genus PHALACROCORAX Brisson, 1760.

Characters same as those given for the Family.

166. PHALACROCORAX CARBO (Linnæus).

COMMON CORMORANT.

Pelecanus carbo LINNÆUS, Syst. Nat. ed. 10 (1758), **1**, 133.
Phalacrocorax carbo GRANT, Cat. Birds Brit. Mus. (1898), **26**, 340, text fig. 1; OATES, Cat. Birds' Eggs (1902), **2**, 198; SHARPE, Hand-List (1899), **1**, 232; MCGREGOR and WORCESTER, Hand-List (1906), 39.

Ca-sí-li, Manila, also applied to the darter.

Calayan (*McGregor*); Luzon (*McGregor*); Ticao (*McGregor*). Europe, Africa, northern Asia, Greenland; eastern North America south to Georgia; Indian Peninsula to China and Australia.

Adult in breeding plumage.—Almost entirely black, with a slight oil-green gloss on neck and under parts; chin dirty white, this color continued backward and upward on each side of neck to back of eye, forming a border, 20 mm. wide, to the gular pouch and naked skin below eye; entire crown, nape, neck on all sides, and throat decorated with long, narrow, soft, white plumes which hide most of the short black feathers; crest glossy black, narrow and about 40 mm. long; each flank decorated with a large patch of long, soft, white feathers; upper back, scapulars, and wing-coverts dull bronze-brown, each feather widely bordered with dark bluish green or with glossy black; quills brownish black; secondaries washed with greenish; tail and its coverts black.

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* The *Phæthontidæ* have the nostrils open and the interramal space feathered. No member of this family has been reported from the Philippine Islands.

Grant gives the following colors and measurements: "Iris bright emerald-green; naked skin round eye greenish brown; below the eye and on gular sack lemon-yellow; bill grayish brown; dusky along culmen and yellowish white toward base; legs and feet blackish. Length, about 914; culmen, 58 to 81; wing, 317 to 356; tail, 173 to 183; tarsus, 58 to 72."

Adult in non-breeding plumage.—Similar to the above but without the elongated feathers on head, neck, throat, and flanks.

"*Young when first hatched* are blind and covered with purplish black skin: in the course of a few days they acquire a thick covering of blackish down.

"*Young in first plumage* (*September*).—General color above dull brown, somewhat glossed on head, neck, and back with bluish green; feathers of back, scapulars, and wing-coverts with wide dark margins; throat, front of neck, breast and belly white; sides, flanks, thighs, and under tail-coverts dark brownish black. As age advances the fore part of neck and chest become brown.

"*Plumage of the second year* (*September*).—Upper parts more like those of the adult, but the plumage is less brilliant and mixed here and there with feathers of the first plumage; feathers of the breast and belly are all widely tipped with brownish black, giving these parts a mottled appearance.

"*Plumage of the third year* (*May*).—Similar to the adult, but the color of upper parts is less brilliant, and the under parts are not of such a rich glossy black. Birds of this age (probably about 26 months old), though they do not breed, assume a partial breeding-plumage; the hair-like feathers on the head and neck being indicated, while the white flank patches are partially acquired." (*Grant.*)

The cormorant appears to be somewhat rare in the Philippines but it will perhaps be found breeding in some of the extensive marsh-lands of central Luzon. A fully adult male in breeding plumage, taken in Tarlac Province, yields the following data: Iris bright sea-green; small spots of bright blue along edges of eyelids and below eye; bare skin below eye bright yellow with a slight orange tinge, this yellow extending to behind angle of mouth and onto base of lower mandible; entire gular pouch dark, almost blackish brown, closely covered with yellow spots; a small area just back of angle of gonys solid yellow; upper mandible blackish brown; lower mandible white with terminal third dusky brown; legs and nails black. Length, 850; wing, 345; tail, 180; culmen, 66; tarsus, 60; middle toe with claw, 85.

Family **ANHINGIDÆ**.

Bill long, slender, straight, and sharply pointed, cutting edges near tip with distinct serrations; head small; neck long and slender; tail long; scapular feathers lanceolate; a pair of inner secondaries and the innermost pair of rectrices with outer webs pliciform.

Genus ANHINGA Brisson, 1760.

Characters same as those given for the Family.

167. **ANHINGA MELANOGASTER** Pennant.

INDIAN DARTER.

Anhinga melanogaster PENNANT, Indian Zool. (1769), **13**, pl. 12; MCGREGOR and WORCESTER, Hand-List (1906), 39.

Plotus melanogaster GRANT, Cat. Birds Brit. Mus. (1898), **26**, 414; BLANFORD, Fauna Brit. Ind. Bds. (1898), **4**, 344, fig. 78; SHARPE, Hand-List (1899), **1**, 236; OATES, Cat. Birds' Eggs (1902), **2**, 207.

Ca-sí-li, Manila, also used for the cormorant.

Luzon (*Meyer, McGregor*); Mindanao (*Mearns, Clemens*); Mindoro (*Steere Exp., Schmacker, Bourns & Worcester, McGregor, Porter*); Negros (*Layard*). Mesopotamia, Indian Peninsula, Indo-Chinese countries, Indo-Malay Peninsula, Borneo, Celebes.

"*Adult male.*—Chin, throat, and upper part of fore neck mottled with white; a narrow white line, about 125 mm. long, commencing above gape and continued down sides of neck; head and neck brown, darker and slightly glossed on the crown and along the back of the neck, paler down the middle of fore neck, each feather being margined with pale brown and giving the whole a finely scaled appearance; upper back brownish black, each feather narrowly margined with rufescent and streaked with white on the lateral parts; rest of back, rump, lower part of fore neck, and under parts black with an oil-green gloss; wing-coverts, scapulars, and innermost secondaries black, each with a long, silvery white streak down the middle; scapulars much elongated and pointed, the longest measuring about 230 mm.; innermost secondary transversely ribbed along the basal two-thirds of outer web; quills and tail black, the middle pair of tail-feathers strongly ribbed on outer web and outer pairs slightly rayed. Tail composed of twelve feathers. 'Iris yellow; bill dusky on culmen, yellowish on sides and on lower mandible; legs black.' (*Godwin-Austen.*) Length, about 890; culmen, from feathers on forehead, 89 to 91; wing, 330 to 355; tail, 218 to 230; tarsus, 43; outer toe with claw, 81.

"*The fully adult female* (if the sex of several specimens in the British Museum is correctly determined) appears to be perfectly similar in plumage to the male, the only difference being that the bill is decidedly shorter, 79 to 81 mm. In some females, however, which appear to be perfectly adult, the black bases of the fore neck and the chest are divided on either side from the back by a whitish buff band, as in immature birds.

"*Immature birds.*—General color as in the adult, but neck much lighter and of a pale brownish white, becoming white down the middle of the fore neck; black at base of fore neck and chest bordered on each side by a whitish buff band; streaks on the upper plumage of a more yellowish white, long pointed scapulars absent or half developed; quills and tail-feathers pointed and narrowly margined at the tips with pale whitish brown; ribs on innermost scapulars and tail-feathers but slightly indicated; back, rump, and upper tail-coverts brownish black.

"*Young in down.*—Head, neck, upper back, and under parts covered with white down, amongst which the plumage of the immature is more or less visible; quill- and tail-feathers half grown, pointed and narrowly margined at the extremity with pale brownish white; scapulars and wing-coverts much like those of the adult, but fringed externally with brown. Length, 724." (*Grant.*)

"Exceedingly abundant about Lake Naujan in Mindoro, where it breeds. Rarer about fresh-water streams in the interior of that island. Not met with by us outside of Mindoro.

"Always swims with its body entirely immersed, and can remain under water an incredibly long time. Flies with difficulty when it first rises from water. Makes straight for some good roosting place, preferably a stump or log in the edge of the water, where it alights, turns its back to the sun, spreads its wings, and remains until thoroughly dry. When dry it flies rapidly, and may often be seen during the heat of the day soaring at a considerable height." (*Bourns and Worcester MS.*)

"Very abundant on the upper waters of the Rio Grande de Cagayan in Isabela Province, and on the upper Agusan River and its lake system in Mindanao." (*Worcester.*)

The Indian darter is fairly abundant along the Baco River in Mindoro and on the Cagayan River in the vicinity of Aparri, Luzon. Clemens collected specimens on Lake Lanao, Mindanao.

Family **SULIDÆ.**

Bill stout and pointed, tapering gradually, the tip slightly curved but never hooked; a groove along each side of culmen; nostrils completely closed in adults; wings long and pointed, first primary longest; tail long and wedge shaped; tarsus short and stout; outer and middle toes nearly equal; claw of middle toe broad and pectinate.

Genus SULA Brisson, 1760.

Characters same as those given for the Family.

Species.

a^1. Upper parts, head, and neck mostly pure white (adult).......... **piscator** (p. 204)
a^2. Upper parts uniform deep sooty brown.
  b^1. Breast and belly pure white (adult).................................. **leucogastra** (p. 205)
  b^2. Breast and belly light brown (immature).
    c^1. Outer webs of flight feathers washed with hoary gray........ **piscator** (p. 204)
    c^2. Outer webs of flight feathers dark brown...................... **leucogastra** (p. 205)

168. SULA PISCATOR (Linnæus).

RED-LEGGED BOOBY.

Pelecanus piscator LINNÆUS, Syst. Nat. ed. 10 (1758), **1**, 134.
Sula piscator GRANT, Cat. Birds Brit. Mus. (1898), **26**, 432; MCGREGOR and WORCESTER, Hand-List (1906), 39.
Sula piscatrix SHARPE, Hand-List (1899), **1**, 237; OATES, Cat. Birds' Eggs (1902), **2**, 210.

Mindanao (*Steere Exp.*). Oceania, southern Atlantic, Indian and Australian seas.

"*Adult.*—General color pure white; primaries, primary-coverts, outer webs and tips of secondaries, and secondary-coverts hoary gray, inclining to blackish on outermost quills in freshly molted birds, and to blackish in worn specimens; chin and upper part of throat naked, the feathers ending in a straight line across throat; tail composed of fourteen, or sometimes sixteen feathers. Iris gray; bill grayish blue, shading into pink or reddish toward the base; naked skin round eye blue; gular pouch dark slate or black; legs and feet vermilion, red or dark pink, almost magenta.

"*Adult male.*—Length, about 750; culmen from feathers on forehead, 89; wing, 394; tail, 10 to 28; tarsus, 35.

"*Adult female.*—Length, about 710; culmen from feathers on forehead, 81 to 88; wing, 373 to 375; tail, 208 to 210; tarsus, 35.

"*Immature in first plumage.*—Entire plumage above and below brown, lighter on breast and belly; primaries and secondaries and their coverts like those of the adult, but the inner webs of the secondaries black. Cutting edges of the mandible sometimes serrated, and the inner margin of the middle claw pectinate. Bill bluish pink, the latter predominating toward the base; naked skin round eye dark leaden hue; gular pouch flesh-colored.

"*More adult specimens* (perhaps in the plumage of the second year) head, neck, and under parts white; back, wings, and tail brown as in the immature; middle tail-feathers dark, brownish gray toward the base, shading into white toward the extremity.

"*A still more adult bird* has a large amount of white or partially white feathers mixed with the brown of the back and wings.

"I should imagine that the fully adult plumage is not attained until the third or perhaps the fourth year. This species may be recognized in all stages of plumage by the hoary gray appearance on the outer webs of the quills." (*Grant.*)

169. SULA LEUCOGASTRA (Boddaert).

BROWN BOOBY.

Pelecanus leucogaster BODDAERT, Tabl. Pl. Enl. (1783), 57.

Sula sula GRANT, Cat. Birds Brit. Mus. (1898), **26**, 436; SHARPE, Hand-List (1899), **1**, 237; MCGREGOR and WORCESTER, Hand-List (1906), 40; OATES, Cat. Birds' Eggs (1902), **2**, 212; WORCESTER, Phil. Jour. Sci. (1907), **2**, sec. A, 275. pl. 1 (Didicas Rocks).

Sula leucogaster BLANFORD, Fauna Brit. Ind. Bds. (1898), **4**, 346, fig. 80 (head).

Sula leucogastra A. O. U. COMMITTEE, Auk (1908), **25**, 359.

Batan (*McGregor*); Calayan (*McGregor*); Didicas Rocks (*Worcester*); Dinagat (*Everett*); Luzon (*McGregor*); Mindanao (*Cuming, Everett*). Tropical Atlantic, Indian, Australian, and Pacific Oceans.

"*Adult.*—Head, neck, chest, entire upper parts, wings, and tail dark sooty brown; breast, rest of the under parts, axillars and under wing-coverts of the secondaries pure white. Tail composed of 14 feathers. Iris silvery white, white, or gray; bill whitish green or greenish blue, becoming flesh-colored or bluish at the base; naked skin on sides of face and gular pouch bluish, greenish, or yellowish; legs and feet pale green or lead-green, sometimes inclining to yellowish.

"*Adult male.*—Length, about 711; culmen from feathers on forehead, 100; wing, 389 to 396; tail, 190 to 195; tarsus, 46 to 48.

"*Adult female.*—Length, about 711; culmen from feathers on forehead, 100; wing, 389 to 396; tail, 190 to 195; tarsus, 46 to 48.

"*Immature in first plumage.*—Differs in having the head, neck, chest, entire upper parts, wings and tail brown, much lighter than in the adult; breast, belly, and under parts still paler brown, the feathers fringed with whitish brown, and generally sharply defined from the darker chest; axillars and secondary under wing-coverts mixed with smoky brown.

"*More mature birds (? plumage of the second year).*—Breast, belly, and under parts largely mixed with white, only the subterminal portion of each feather smoky brown.

"*Still more mature bird (? plumage of the third year).*—Head, neck, chest, and upper parts darker brown, and more like those of the adult; the breast and belly thickly mixed with the pure white feathers of the adult. These appear to be entirely attained by molt, many half-grown ones being concealed beneath the plumage." (*Grant.*)

This gannet is quite abundant about the small islands north of Luzon and it probably finds nesting places on some of the more isolated rocks. Gannets lay their chalky white eggs in the sand or construct flat nests of sticks which they place in bushes or trees. One or two eggs are deposited in a nest.

Family **FREGATIDÆ.**

Bill long and strongly hooked, both mandibles decurved at tip; lateral grooves deep; nostrils situated in the grooves and practically closed; a large naked and brightly colored gular pouch; wings pointed and extremely long; first primary longest; tail long and very deeply forked; feet absurdly small and weak for so large a bird; claw of middle toe pectinate; tarsus very short; plumage black with beautiful green and purple gloss.

Genus FREGATA Lacépède, 1799.

Characters same as those given for the Family.

Species.

a^1. Breast and sides black (males).
  b^1. Larger; culmen, 92 to 112 mm.; wing, 520 to 655; no white patch on flank. **aquila** (p. 206)
  b^2. Smaller; culmen, 58 to 89 mm.; wing, 488 to 533; a white patch on each flank. **ariel** (p. 207)
a^2. Breast and sides white (females).
  b^1. Larger; culmen, 109 to 132 mm.; wing, 612 to 678; no white collar round back of neck .... **aquila** (p. 206)
  b^2. Smaller; culmen, 81 to 91 mm.; wing, 510 to 528; a white collar round back of neck .... **ariel** (p. 207)

170. **FREGATA AQUILA** (Linnæus).

GREATER MAN-O'-WAR BIRD.

Pelecanus aquilus LINNÆUS, Syst. Nat. ed. 10 (1758), **1**, 133.
Fregata aquila GRANT, Cat. Birds Brit. Mus. (1898), **26**, 543; SHARPE, Hand-List (1899), **1**, 237; OATES, Cat. Birds' Eggs (1902), **2**, 212; MCGREGOR and WORCESTER, Hand-List (1906), 40.

Sa-la-gun-ting', Manila; *lang-y-san'*, Cagayancillo.

Cagayancillo (*McGregor*). Tropical and subtropical oceans of both hemispheres.

Adult male.—General color black, becoming sooty below; feathers of head, upper back, and scapulars elongate and pointed; head with slight oil-green gloss; scapulars strongly glossed with bronze-green, this color changing to purple when specimen is held away from the light; a trace of green and purple gloss on breast and sides. Iris brown; bill black except the tip which is horn-gray; gular pouch dark crimson; feet blackish brown, flesh-colored below; webs bluish below; nails brown. Extent of wings, 1,830; length of bird, 914; wing, 600; tail, 410; depth of fork, 240; culmen from base, 105; tarsus, 20. Grant gives the following measurements: Length, about 1,016; culmen, from feathers on forehead, 91 to 112; wing, 521 to 655; tail, 355 to 376; tarsus, 18."

"*Adult female.*—Feathers of head less elongate than in the male and with little or no gloss; upper back and scapulars slightly elongate and almost devoid of metallic gloss; back of head dark brown; fore neck, chest, breast, and sides of belly pure white; lesser and median wing-coverts brown, with paler margins and dark middles; rest of plumage like that of adult male. Iris dark brown; bill bluish horn-color; orbits and gular skin dark plumbeous, with a tinge of violet; feet carmine. Length, 582 to 678; tail, 373 to 483; tarsus, 25.

"*Male and female immature.*—Head, neck, upper part of chest, and middle of lower breast and belly, white; sides and upper breast dark sooty brown; rest of plumage like adult female. Iris dull dark blue; naked skin on throat lavender, bill horn-color, darker at base; feet pale pinkish blue." (*Grant.*)

"The eggs of the great frigate bird measure from 59 to 72 mm. in length and from 42 to 51 in breadth." (*Oates.*) The eggs are white and covered with more or less chalk-like substance.

The frigate pelicans are preëminently soaring birds of wonderful power. In these Islands they are rarely seen, and far more rarely killed, as they usually fly at great heights. During the nesting season they are fearless and may be observed near at hand. The larger species, at least, may nest on some of the more remote and rocky islands of this Archipelago.

171. FREGATA ARIEL (Gould).

LESSER MAN-O'-WAR BIRD.

Attagen ariel Gould, in Gray's Genera Birds (1845), **3**, 669.

Fregata ariel Grant, Cat. Birds Brit. Mus. (1898), **26**, 447; Blanford, Fauna Brit. Ind. Bds. (1898), **4**, 338, fig. 77 (head); Sharpe, Hand-List (1899), **1**, 237; Oates, Cat. Birds' Eggs (1902), **2**, 213; McGregor and Worcester, Hand-List (1906), 40.

Fregata minor (not *Peleeanus minor* Gmelin) Sharpe, Ibis (1888), 204; Grant, Ibis (1896), 128.

Con-pi-sao', Bantayan.

Bantayan (*McGregor*); Cagayancillo (*McGregor*); Luzon (*Whitehead*); Mindanao (*Bourns & Worcester*); Negros (*Bourns & Worcester*); Palawan (*Whitehead*). Tropical and subtropical Indian and Pacific Oceans.

"*Adult male.*—General color black, inclining to sooty black on under parts; feathers of head, upper back, and scapulars elongate and pointed, the former with a dull oil-green gloss, the latter dark metallic-green in freshly molted specimens, but becoming bronze or purple with wear; a large white patch on each flank. Tail composed of 12 feathers. Iris black; naked skin round eye and gular pouch red; bill gray; feet black. Length, about 760; culmen from feathers on forehead, 58 to 89; wing, 487 to 533; tail, 279 to 338; tarsus, 19.

"*Adult female.*—Head like that of the male, but feathers of the back and scapulars less elongate and of a brownish black color with scarcely a trace of metallic gloss; breast, sides of belly, flanks, and a wide collar round the neck white; lesser and median wing-coverts pale brown, with whitish margins and deep brown shaft-stripes; plumage otherwise like that of the male. Iris red; bill gray; bare skin round the eye and on the throat red, but not so light as that of the male; feet red. Length, about 760; culmen from feathers on forehead, 81 to 91; wing, 510 to 528; tail, 287 to 343; tarsus, 18.

"*Male and female immature.*—Head and neck white, shading into brown on the chest, breast, sides of belly, lower neck, and upper parts; middle of belly and flanks white. It will thus be seen that the colors of the above parts are just the reverse of those of the adult female, the white parts being dark and vice versa; rest of the plumage much like that of the adult female. Iris black; bill and feet whitish with a shade of blue." (*Grant.*)

"Not infrequently seen singly or in small flocks, but very difficult to kill." (*Bourns and Worcester MS.*)

Family **PELECANIDÆ.**

Body large and heavy; upper mandible depressed, narrower and higher at base, broader and flattened toward the end, composed of a median bar, continuing the whole length of the bill and terminating in a strongly hooked nail, and of two lateral portions each separated from the median bar by a very narrow groove, in the basal part of which the small nostril opens; lower mandible thin, of two flexible arches supporting a large pouch of naked membrane.

Genus PELECANUS Linnæus, 1758.

Characters same as those given for the Family.

172. **PELECANUS PHILIPPENSIS** Gmelin.

SPOTTED-BILLED PELICAN.

Pelecanus philippensis GMELIN, Syst. Nat. (1788), **1**, pt. 2, 571; GRANT, Cat. Birds Brit. Mus. (1898), **26**, 471; SHARPE, Hand-List (1899), **1**, 238; OATES, Cat. Birds' Eggs (1902), **2**, 217; MCGREGOR, Bull. Philippine Mus. (1904), **4**, 14, pls. 3 & 4; MCGREGOR and WORCESTER, Hand-List (1906), 40; DUBOIS, Genera Avium, Pelecanidæ (1907), 3, pl. fig. 4.

Pelecanus manillensis OATES, Birds Brit. Burmah (1883), **2**, 236; HUME, Nests & Eggs Ind. Bds. Oates ed. (1890), **3**, 276.

Pa-ga'-la, Manila.

Luzon (*Sonnerat, McGregor, Worcester*); Mindanao (*Mearns*). India and Ceylon, south to Burmah and Malay Peninsula, east to China and Hainan.

"*Adult in breeding plumage.*—(September to February). General color pure white; forehead, top of head, fairly long crest, cheeks, and neck covered with dense curly, very soft, pure white feathers, with their black bases more or less visible; hind neck, from crest to upper back, covered with soft grayish brown feathers, forming a mane; upper back, scapulars, and wing-coverts white, tinged, especially on the lesser wing-coverts, with cream-color; winglet, primaries, and primary-coverts brownish black, with the upper surface of the shafts dark; secondaries grayish brown, paler on the outer web and shading into brownish gray on innermost secondaries; an interscapular line down the middle of upper back; lower back, rump, flanks, under tail-coverts, axillars, and under wing-coverts vinaceous; rest of under parts pure white, chest and upper breast tinged with yellow; tail-feathers ashy, paler toward the tips and with dark shafts. Tail composed of 22 feathers. 'Bill pinkish yellow, the lateral portions of the upper mandible with large bluish black spots; the nail and terminal halves of both mandibles orange-yellow; central portions of sides of lower mandible smeared with bluish black; pouch dull purple, blotched and spotted with bluish black; eyelids and skin round eye orange-yellow; skin in front of eye livid; legs and feet very dark brown; claws yellowish horn; iris stone-white, varying to pale yellow, clouded with brown.' (*Oates.*) Length, 1,295 to 1,500; culmen, 320 to 368; wing, 558 to 610; tail, 203 to 421; tarsus, 84 to 96. The female is somewhat smaller than the male, but not conspicuously so.

"*Adult in non-breeding plumage* (*March–August*).—Plumage similar to that of the young after the first molt.

"*Nestling.*—Covered with white down; iris dark brown; bill pale plumbeous; legs china-white; pouch pale bluish white. The down on the wings soon turns to pale rufous; and the scapulars, when they appear, are brown, edged with ferruginous; the wing-coverts, on making their appearance, are furnished with a dense fringe of rufous down, which, however, soon falls off, leaving the feathers with rufous margins; the scapulars are developed very rapidly, and their ferruginous margins are diminished in extent as the bird grows; the down on the head and neck gives place to brownish feathers, and the crest and loose feathers of the mane on the hind neck soon make their appearance.

"The *young bird*, when fully fledged, retains its first feathers for at least one year, the only change being that the brown colors become darker and the rufous edgings abraded and consequently less marked. The impressed spots on the bill are not indicated till the sixth month, and even at the end of twelve months these spots are quite indistinct, compared with those of the adult bird. Toward the end of the first year a livid spot appears in front of the eyes and soon becomes clearly defined. The nail and the terminal third of the edges of the bill are yellow, legs and toes flesh-color.

"*After the first molt*, at about twelve months of age, the whole head and neck are covered with short, soft, downy feathers, the bases of which are black, the tips white; and the crest and mane are developed to the same extent as in the adult; the shoulders and scapulars are wood-brown;

the lesser and median coverts to the secondaries wood-brown; the feathers all edged with paler; the greater coverts darker brown, edged with light brown; the coverts to the tertiaries grayish brown, edged with pale fulvous. The whole of the coverts narrow and sharp-pointed; the winglet, primaries, and their coverts dark brown; the secondaries brown, tinged with ashy on the outer webs; the whole back, rump, upper tail-coverts, and flanks white; the lower plumage whitish brown, each feather being white with the tip brownish, the feathers close, dense, and soft.

"*In June of the third year,* or when the bird is about thirty months old, the molt into adult breeding plumage is commenced and the change is entirely effected by October, except that in this first breeding season the wing-coverts never become entirely white as in the old birds, the feathers of these parts being a mixture of long sharp-pointed, white feathers, and comparatively blunt brown ones. Between June and October the pouch, which has hitherto been spotless, becomes blotched with livid as in the adults, the blotches extending to the face; the legs turn to dark brown; the iris becomes paler brown; and the spots on the bill become firm and well defined.

"Mr. E. W. Oates, having kept large numbers of *P. philippensis* in confinement, has had exceptional opportunities of studying the changes of plumage, and the above descriptions are the results of his observations, published in his Birds of British Burmah." (*Grant.*)

"We were informed that pelicans were abundant on the Laguna de Bay at certain seasons, but when we were there none were to be found. A number of specimens are preserved in the Jesuit Museum at Manila, and several live birds were to be seen there on different occasions when we visited the Museum. Padre Sanchez kindly offered us specimens, and we intended to accept his offer at a later date, but unforeseen circumstances prevented our doing so." (*Bourns and Worcester MS.*)

"Abundant about fish-breeding ponds in tide-water marshes of Bulacan in February, 1904. Also at Anao, Tarlac Province, in same month and year. Fairly common in the Candaba swamp, Luzon." (*Worcester.*)

Order **ACCIPITRIFORMES.**

EAGLES, HAWKS, AND FALCONS.

Bill strong, upper mandible considerably longer than the lower, culmen much curved, end of bill hooked and its tip perpendicular; basal portion of bill covered by a membrane or cere, in which the nostrils are situated; legs large; feet very strong, claws curved and sharp; general plumage compact; wings long and powerful; tail nearly square, rarely forked or wedge-shaped.

Suborders.

*a*¹. Claws less curved, that of middle toe describing much less than a semicircle; outer toe not reversible .... **Accipitres** (p. 211)
*a*². Claws greatly curved, that of middle toe describing a full semicircle; outer toe reversible .... **Pandiones** (p. 244)

Suborder ACCIPITRES.

This suborder includes all the hawks and eagles except the fish hawks of the genera *Pandion* and *Polioaëtus;* its members are distinguished by having the outer toe not reversible and all of the claws moderately curved, that of middle toe describing much less than a semicircle; concave or under side of each claw hollowed or grooved instead of rounded.

Family **FALCONIDÆ.**

Characters same as those given for the Suborder.

Subfamilies.

*a*¹. Tarsus and toes longer and more slender .... **Accipitrinæ** (p. 211)
*a*². Tarsus and toes shorter and stouter .... **Aquilinæ** (p. 222)

Subfamily ACCIPITRINÆ.

In external characters this subfamily differs very little from *Aquilinæ;* its members are weaker with body and legs more slender, wings and tail longer, and plumage less compact.

Genera.

*a*¹. Hinder aspect of tarsus with many hexagonal scales; wing, 300 mm. or more. **Circus** (p. 211)
*a*². Hinder aspect of tarsus without hexagonal scales; wing, 200 mm. or less.
  *b*¹. Middle toe without claw about twice the culmen from anterior margin of cere. **Astur** (p. 216)
  *b*². Middle toe without claw more than twice the culmen from anterior margin of cere .... **Accipiter** (p. 219)

Genus CIRCUS Lacépède, 1799.

Bill moderate or weak, somewhat compressed; margin of upper mandible slightly sinuate but not toothed; wing very long and pointed, first primary short, about equal to sixth; secondaries much shorter than primaries; tail long, slightly graduated or nearly square; tarsus long and slender, feathered at the base and overhung for about half its length by the long thigh-feathers; front of tarsus with transverse plates, sides and most of the hinder aspect with hexagonal scales; toes long, nails long and much curved; behind ear-coverts and sometimes across the throat a "ruff" of short, rather stiff feathers, most conspicuous in the young of *melanoleucos* and not very evident in the other species.

The harriers or marsh hawks are noticeable among birds of prey for their slender form, long slender legs, and slow flight. Adult birds can be easily identified but the immature specimens present considerable difficulty.

Species.

(Adult.)

- a^1. Upper parts black; tail silvery gray; lower breast, abdomen, and crissum white.
  - b^1. Throat and fore breast white streaked with black................ **spilonotus** (p. 211)
  - b^2. Throat and fore breast black.. **melanoleucos** (p. 214)
- a^2. Upper parts dark brown; tail bluish ash.............................. **æruginosus** (p. 215)

(Immature.)

- a^1. Facial ruff complete across the throat; smaller, tarsus about 70 mm.; wing, 340 mm.. **melanoleucos** (p. 214)
- a^2. Facial ruff incomplete; tarsus about 90 mm.; wing, 400 mm.
  - b^1. Lighter; general color more rufous-brown.......................... **spilonotus** (p. 212)
  - b^2. Darker; general color more chocolate-brown.................... **æruginosus** (p. 215)

173. CIRCUS SPILONOTUS Kaup.

ASIATIC MARSH HAWK.

Circus spilonotus Kaup, Cont. Orn. (1850), 59; Sharpe, Cat. Birds Brit. Mus. (1874), **1**, 58; Hand-List (1899), **1**, 245; Blanford, Fauna Brit. Ind. Bds. (1895), **3**, 388; Oates, Cat. Birds' Eggs (1902), **2**, 236; McGregor and Worcester, Hand-List (1906), 40.

La-uin', Manila; *ma-na-o'*, Calayan, all species of small hawks.

Batan (*Edmonds*); Calayan (*McGregor*); Luzon (*Heriot, Whitehead*); Mindanao (*Platen*); Mindoro (*Everett*); Palawan (*Whitehead, Everett*); Sulu (*Guillemard*). Eastern Siberia; in winter to China, Indo-Burmese countries, and Malay Archipelago.

Adult male.—Above black, nape and hind neck narrowly streaked with white; feathers of lower back and rump tipped with ashy gray or white; sides of head and ear-coverts black; lower parts white; chin, throat, and breast with bold black shaft-streaks; primaries black, white for basal third; alula, primary-coverts, and secondaries ashy white with blackish shafts; secondary-coverts black, more or less mixed with ashy white; under coverts and axillars white; tail ashy white; upper tail-coverts white. Iris bright yellow; legs dull yellow; cere waxy green; bill and nails black. The above specimen from Tarlac Province, Luzon, measures, 520 in length; wing, 410; tail, 230; culmen from base, 33; tarsus, 92; middle toe with claw, 63.

Younger male.—Color pattern similar; upper parts brown; white streaks on head and neck more numerous; under parts white with wider streaks of reddish brown which are also present on flanks and abdomen; primaries black, some of them barred with ashy white; wing-coverts brown with less white than the adult; primary-coverts and alula ashy white but with blackish brown bars; under wing-coverts white, streaked with blackish brown; axillars white, streaked and barred with reddish brown. Length, 533; wing, 400; tail, 235; culmen from base, 32; tarsus, 80; middle toe with claw, 61.

"*Adult female.*—Above brown slightly shaded with ashy, the dorsal feathers obsoletely margined with dull rufous; crown and hind neck tawny-buff, paler on the neck, all the feathers mesially streaked with brown; scapulars and wing-coverts margined and barred with tawny or fulvous, the least wing-coverts more conspicuously margined with rufous; quills brown, narrowly tipped with whitish, externally shaded with ashy gray, the secondaries less distinctly, and all barred across with darker brown; under surface of wing white, the dark bars showing very distinctly; lower back and rump brown, the feathers distinctly tipped with pale rufous; upper tail-coverts pure white; tail ashy gray, tipped with fulvous and crossed with five blackish bands, the subterminal one much the broadest, the ashy gray interspaces inclining to or replaced by pale tawny on the outer feathers; lores as well as a distinct eyebrow and ear-coverts buffy white; sides of face and of neck, as well as the facial ruff, rufous-buff streaked with dark brown; under surface of body creamy buff, with central pointed marks of rufous-brown to the feathers, more distinct on the fore neck and under wing- and tail-coverts; flank-feathers and axillars rufous-brown, with large rounded spots of creamy buff on both webs; under wing-coverts and thighs creamy buff, with irregular central streaks of rufous-brown occupying the major part of the greater under wing-coverts. Length, 584; wing, 394; tail, 279; tarsus, 79." (*Sharpe.*)

"*Adult female.*—Brown above, the feathers throughout with pale rufous edges; tail-coverts white and rufous; tail with about six dark cross-bands, which disappear in old individuals; lower parts buff, with broad rufous-brown shaft-stripes. The quills are dark brown but become grayish in old birds.

"*Young birds* so closely resemble those of *C. æruginosus* as to be indistinguishable at times. The pale head and neck-feathers are always striated in *C. spilonotus,* but the body, wings, and tail are uniform brown or variegated with buff on the wing-coverts, back, and breast. Generally, though not invariably, traces of bars will be found on some of the tail-feathers of *C. spilonotus*, but this occasionally happens in *C. æruginosus* also.

"Length, of male, 508; tail, 235; wing, 394; tarsus, 89; tail of female, 254; wing, 419; tarsus, 94." (*Blanford.*)

174. CIRCUS MELANOLEUCOS (Pennant).

PIED MARSH HAWK.

Falco melanoleucos PENNANT, Ind. Zool. (1769), 2, pl. 2.

Circus melanoleucus SHARPE, Cat. Birds Brit. Mus. (1874), **1**, 61; Hand-List (1899), **1**, 245; BLANFORD, Fauna Brit. Ind. Bds. (1895), **3**, 385; OATES, Cat. Birds' Eggs (1902), **2**, 237; MCGREGOR and WORCESTER, Hand-List (1906), 41; MCGREGOR, Phil. Jour. Sci. (1907), **2**, sec. A, 322, pl. 1.

Bantayan (*McGregor*); Basilan (*Mearns*); Bohol (*McGregor*); Calayan (*McGregor*); Guimaras (*Steere Exp.*); Luzon (*Steere Exp., Whitehead*); Mindanao (*Steere Exp., Celestino*); Negros (*Bourns & Worcester, Keay*); Sibay (*McGregor & Worcester*); Sulu (*Guillemard*); Ticao (*McGregor*). Eastern Siberia and Mongolia; in winter to China, northeastern Indian Peninsula, and Indo-Chinese countries.

"*Adult male.*—Upper parts glossy black; rump and upper tail-coverts white, the latter with two or three broad cross-bars of black or ashy gray, the former also shaded with gray; wing-coverts silvery gray, margined with white, with a broad band of black feathers extending from the bend of wing parallel with its margin and joining the median coverts, which are also black; primaries black; primary-coverts and secondaries silvery gray, except the innermost, which are black; tail entirely silvery gray, tipped with white, below and on the inner webs white; sides of face and neck, throat, and chest glossy black; rest of under surface, including under wing- and tail-coverts, pure white. Bill and cere black; feet yellow; iris yellow. Length, 457; culmen, 25; wing, 356; tail, 216; tarsus, 76." (*Sharpe.*)

"*Adult female.*—Above dark brown, the feathers of the crown and neck with rufous edges, those of the nape broadly bordered with white; a well-marked ruff of small white or buffy white feathers with brown shaft-stripes; around eyes whitish; cheeks and ear-coverts dirty white or pale rufous with brown streaks; smaller coverts along forearm white (in younger birds rufous) with blackish brown shaft-stripes, median coverts brown with gray or white spots and bars, larger coverts dusky gray with a broad subterminal blackish band and another near the base; primaries outside blackish brown; secondaries gray, with blackish cross-bands, beneath all are grayish or whitish with dark bands; upper tail-coverts white, sometimes with rufous-brown drops or bands; tail gray with dark brown cross-bands; lower parts white, with dark brown shaft-stripes, broad on the throat and breast, narrower and sometimes disappearing on the abdomen.

"*Young birds* are more uniform brown above than the adult female, and have no gray on the wings or tail, which are brown with darker bands; the ruff is ill-marked at the sides, but there is a large white brown-streaked nuchal patch and another patch of buff-edged brown feathers on the throat; the lower parts generally are rufous-brown, faintly streaked darker.

"For a long time it was supposed that both sexes in this bird were pied and similar, but the true facts were gradually traced out by Mr. Hume. Still one undoubted case is recorded by Mr. Cripps in which a female assumed the pied livery of the adult male, and other probable cases are indicated by the measurements of pied specimens. Length of male, 432; tail, 216; wing, 349; tarsus, 76; length of female, 470; tail, 228; wing, 368; tarsus, 81; bill from gape, 30." (*Blanford.*)

The adult male of the pied marsh hawk is a very beautiful and graceful bird; the female and young are dull brown and unattractive. This species is fairly abundant in the lowlands where it frequents open country.

175. CIRCUS ÆRUGINOSUS (Linnæus).

EUROPEAN MARSH HAWK.

Falco æruginosus LINNÆUS, Syst. Nat. ed. 10 (1758), **1**, 91.

Circus æruginosus SHARPE, Cat. Birds Brit. Mus. (1874), **1**, 69; Hand-List (1899), **1**, 246; BLANFORD, Fauna Brit. India Bds. (1895), **3**, 387; GRANT, Ibis (1895), 438; OATES, Cat. Birds' Eggs (1902), **2**, 239; MCGREGOR and WORCESTER, Hand-List (1906), 41.

Cagayan Sulu (*Mearns*); Luzon (*Whitehead*); Mindoro (*Everett*). Temperate Europe and Siberia; in winter to northern Africa, Indian Peninsula, and China.

"*Adult male.*—Head, neck, and breast buff or pale rufous, with dark brown shaft-stripes, broader on the breast; back and most of the wing-coverts dark brown; scapulars still darker, sometimes gray toward the base; smallest coverts along the forearm whitish, with dark brown shafts; outer greater coverts, primary-coverts, and all quills except first six primaries dark silvery gray, remaining coverts and very often the tertiaries dark brown; first six primaries black with the basal portion white; upper tail-coverts white with rufous and brown mixed in various ways; tail gray above, isabelline below; abdomen and lower tail-coverts ferruginous brown, more or less striped darker.

"*Females* are dark brown except the crown, nape, chin, and more or less of the throat, which are buff with brown stripes. There is sometimes a patch of buff on the breast, the wing-coverts and back have buff edges, and the upper tail-coverts are rufous.

"The *young* of both sexes resemble the female, except that the buff on the head is sometimes unstreaked and more limited in extent, being confined in some cases to a nuchal patch or even wanting altogether.

"'Bill black; cere and base of bill greenish yellow; iris yellow, brownish yellow in females and young; legs and feet rich yellow.' (*Hume.*)

"Length of males, 533; tail, 241; wing, 406; tarsus, 86; length of females, 572; tail, 248; wing, 419; tarsus, 89." (*Blanford.*)

The measurements given by Sharpe are as follows: "Male, length, 571; culmen, 39; wing, 406; tail, 254; tarsus, 86. Female, length, 584; wing, 432; tail, 279; tarsus, 96."

The young of *Circus spilonotus* and *C. æruginosus* are similar in plumage and as the size is also nearly the same it is a matter of some difficulty to distinguish between them. Sharpe identified as *C. æruginosus* a young female collected in the Philippines by Cuming, but he finally referred it to *C. spilonotus*. Whitehead obtained an immature male in northern Luzon which according to Grant "is undoubtedly referable to the present species [*æruginosus*]." Concerning the specimen from Calayan Sulu, collected by Mearns, Dr. Chas. W. Richmond writes that "it may prove to be *spilonotus*." Hartert makes no comment on the specimen collected by Everett in Mindoro.

Some of the numerous brown marsh hawks in the Bureau of Science collection may be of this species but they can not be determined at present.

Genus ASTUR Lacépède, 1799.

Bill small and compressed, upper mandible with a deep notch or a strong sinuation near its tip; first primary short, third or fourth longest; tarsus rather long and with transverse plates in front and behind but the division lines between plates very obscure.

Species.

a^1. Larger, length more than 330 mm.; under parts white, barred with brown or pale rufous .... **trivirgatus** (p. 216)
a^2. Smaller; length less than 330 mm.; under parts not barred.
  b^1. Breast light chestnut .... **soloensis** (p. 217)
  b^2. Breast light gray .... **cuculoides** (p. 218)

176. ASTUR TRIVIRGATUS (Temminck).

CRESTED GOSHAWK.

Falco trivirgatus TEMMINCK, Pl. Col. (1824), **1**, pl. 303.
Astur trivirgatus SHARPE, Cat. Birds Brit. Mus. (1874), **1**, 105; Hand-List (1899), **1**, 249; OATES, Cat. Birds' Eggs (1902), **2**, 243; MCGREGOR and WORCESTER, Hand-List (1906), 41.

Balabac (*Everett*); Leyte (*Everett*); Mindanao (*Everett, Steere Exp., Platen, Bourns & Worcester, Celestino, Goodfellow*); Palawan (*Whitehead, Platen*); Samar (*Bourns & Worcester, Whitehead*). Indian Peninsula, Indo-Malayan Islands, Ceylon, Formosa.

"*Adult male.*—Above slaty gray, the upper tail-coverts blackish and tipped with white; head and neck clearer slaty gray, including a conspicuous occipital crest, the sides of the neck somewhat tinged with rufous; quills browner than the back, primaries with rufescent shafts, barred above with dark brown, much plainer underneath, where the quills are white at the base of the inner web; tail ashy brown, paler at tip, crossed with four bands of dark brown; throat white, with a distinct black moustachial streak on each side and a broad median line; chest clear tawny-rufous; rest of under surface white, broadly banded with pale rufous, each bar of this color having a conterminous brown bar, the thighs thickly barred with ashy brown without any rufous tinge; under tail-coverts white; under wing-coverts white, spotted with brown or rufous-brown, and the axillars similarly barred. Cere orange-yellow; bill black, lead-color at base; cheeks and orbits orange; feet yellow; iris orange-yellow. Length, 356; culmen, 27; wing, 198; tail, 160; tarsus, 56.

"*Adult female.*—Similar to the adult male, but much larger. Length, 457; wing, 246; tarsus, 68.

"*Young.*—Above brown, with a fully developed occipital crest, upper tail-coverts banded with darker brown and tipped with white; quills and tail much as in the adult, the latter with five cross-bands of darker brown; under surface of body white, the throat with the three characteristic streaks like the adult, the breast broadly streaked with pale rufous, inclining to dark brown in the center of the chest, the lower breast and abdomen barred with pale rufous, the bars narrower and darker on the thighs; under tail-coverts white, with a few narrow, nearly obsolete, cross-bars; under wing-coverts buff, spotted and barred with dark brown." (*Sharpe.*)

177. ASTUR SOLOENSIS (Latham).

HORSFIELD'S GOSHAWK.

Falco soloensis Latham, Gen. Hist. (1821), **1**, 209;
Astur soloensis Sharpe, Cat. Birds Brit. Mus. (1874), **1**, 114, pl. 4, fig. 1; Hand-List (1899), **1**, 250; Oates, Cat. Birds' Eggs (1902), **2**, 245; McGregor and Worcester, Hand-List (1906), 41.

Basilan (*McGregor*); Cagayancillo (*McGregor*); Luzon (*Whitehead*); Mindanao (*Steere Exp., Bourns & Worcester, Goodfellow*). China and Indo-Chinese countries; in winter to Malay Peninsula, Indo-Malayan Islands, and Moluccas.

"*Adult.*—The adult plumage appears to be gained by a gradual mersion of the rufous stripes on the breast. Above light bluish gray, some of the feathers margined with darker gray; sides of face and neck gray like the head, but a little more dingy; under surface of the body pale buffy vinous, the throat, flanks, and thighs, as well as the under wing- and tail-coverts, white, with a slight grayish shade on the sides of the breast; quills black externally, shaded with ashy gray, under surface white at base of inner web, but having no distinct bars above or below; tail dull bluish gray above, ashy white beneath, with four or five indistinct cross-bands of dark brown, a little plainer underneath, but these not strictly continuous. Cere yellow; gape and orbits yellowish; bill black, lead-color at base; feet yellow; iris yellow. Length, 300; culmen, 19; wing, 200; tail, 137; tarsus, 48.

"*Observation.*—A specimen from the Philippines, nearly adult in every respect, is much deeper slate-color above, and far more ruddy and vinous below, than the one described.

"*Young.*—Above brown, with rufous edgings to the feathers, a little broader on the upper tail-coverts, the sides of the neck washed with rufous, the nape mottled with white; crown blackish, an ill-defined eyebrow and fore part of the cheeks white, narrowly lined with blackish brown; the ear-coverts brown, slightly washed with dull rufous; throat buffy white, with a moustachial line on each side and a median streak of brown; rest of under surface buffy white, the chest broadly streaked and the breast and flanks barred with pale rufous; under tail-coverts white; under wing-coverts clear buff, the lowest ones spotted with blackish; quills dark brown, slightly tipped with whitish, very indistinctly barred above with darker brown, underneath buffy white at the base of the inner web, indistinctly barred with dark brown, visible only on the inner webs; tail ashy brown, whitish at tip, crossed with five bars of darker brown, the under surface whitish ashy, the cross-bars more distinct, except on the outer web, where they are almost obsolete." (*Sharpe.*)

"Met with only in Mindanao, where it is not at all common." (*Bourns and Worcester MS.*)

Male specimen from Cagayancillo: Bill black, bluish at base; iris dark brown; cere and legs buffy yellow; nails black. Length, 285; wing, 190; tail, 131; culmen from base, 20; tarsus, 41.

178. ASTUR CUCULOIDES (Temminck).

CUCKOO GOSHAWK.

Falco cuculoides TEMMINCK, Pl. Col. (1823), **1**, pls. 110, 129.
Astur cuculoides SHARPE, Cat. Birds Brit. Mus. (1874), **1**, 115, pl. 4, fig. 2; Hand-List (1899), **1**, 250; MCGREGOR, Bull. Philippine Mus. (1904), **4**, 15; MCGREGOR and WORCESTER, Hand-List (1906) 41.

Cagayancillo (*McGregor*). China; in winter to the Malay Archipelago.

"*Adult.*—Above light slaty gray, the margins to the feathers rather darker, the ear-coverts and sides of neck a little paler than the upper surface; lores slightly whitish; under surface of body very pale vinous, somewhat tinged with ashy on sides of breast and throat, the latter being otherwise whitish; lower flanks, abdomen, under tail-coverts, and thighs white; the latter indistinctly dusted with ashy; under wing-coverts and axillars pure white; upper wing-coverts slaty gray like back; quills blackish, shaded above with slaty gray, lower surface of primaries black, all the quills white at base of inner web, more extended on the secondaries, which are ashy gray toward the tips; tail deep slaty gray, nearly uniform above, grayish ash-color below, inclining to white near base of feathers and crossed with five bands of darker brown, the subterminal one broadest. Cere yellow; bill horn-brown; feet yellow, claws black; iris dark brown. Length, 310; culmen, 18; wing, 203; tail, 127; tarsus, 51." (*Sharpe.*)

A male specimen from Cagayancillo measures: Length, 300; wing, 190; tail, 136; culmen from base, 20; tarsus, 40. Iris very dark brown; bill black, greenish at base; cere orange; feet light orange; nails black.

Genus ACCIPITER Brisson, 1760.

This genus is closely related to *Astur* but the plumage is always more or less mottled or barred and the middle toe is relatively longer; culmen from front margin of cere less than half the middle toe without claw; notch in upper mandible less pronounced.

Species.

a^1. Under parts with wide dark bars, with wide shaft-stripes, or with large round drop-like spots; tarsus of male, 42; of female, 44.
  b^1. Fourth primary considerably longer than fifth.......................... **gularis** (p. 219)
  b^2. Fourth primary but slightly longer than fifth.......................... **virgatus** (p. 220)
a^2. Under parts nearly uniform dull chestnut, abdomen, flanks, and thighs narrowly barred with white; tarsus of male, 48; of female, 54.... **manillensis** (p. 220)

179. ACCIPITER GULARIS (Temminck and Schlegel).

JAPANESE SPARROW HAWK.

Astur (nisus) gularis TEMMINCK and SCHLEGEL, Fauna Japonica, Aves (1850), 5, pl. 2.
Accipiter gularis GRANT, Ibis (1896), 104; SHARPE, Hand-List (1899), 1, 254; MCGREGOR and WORCESTER, Hand-List (1906), 41.
Accipiter virgatus SHARPE, Cat. Birds Brit. Mus. (1874), 1, 150 (part).

Calayan (*McGregor*); Cebu (*McGregor*); Fuga (*Whitehead*); Mindanao (*Koch & Schadenberg*). Japan, northern China; in winter to Malay Peninsula and Malay Archipelago.

Adult.—Above including wings, blackish slate, the bases of the feathers pure white with a tendency to show on the nape; ear-coverts and sides of neck slaty gray, the feathers edged with rufous; sides of face slate, lined with white; chin and throat white with blackish shaft-lines; breast and sides vinous-chestnut; abdomen and under tail-coverts white; quills blackish, inner webs white basally; secondaries and inner primaries barred with blackish; under wing-coverts and axillars pale ochraceous; tail ashy brown crossed by five bars of blackish brown, seven bars on outermost pair. Male, length, 273; wing, 190; tail, 124; culmen from base, 18; tarsus, 45; middle toe with claw, 33. Female, length, 295; wing, 205; tail, 148; culmen from base, 18; tarsus, 42; middle toe with claw, 34.

Immature.—Upper parts dark brown, most of the feathers edged with rusty or earthy brown; under parts white with wide bars of light rusty brown. This plumage is followed by one in which the under parts are white with wide shaft-streaks of blackish brown. Specimens occur with the fore breast streaked and the hind breast, sides, and flanks barred and with individual feathers both barred and streaked. The acquisition of adult plumage probably takes some time, two or three years.

The preceding descriptions are taken from birds collected in Calayan Island and while none of them shows the complete adult plumage, one specimen has the breast partly chestnut indicating the adult plumage.

Grant characterizes *A. gularis* as follows:

"*Female adult.*—Like *A. nisus,* being barred transversely *up to the* *throat,* which is white, with a more or less well-marked dark line down the middle, formed by the *very narrow* black or grayish-black shaft-stripes to the feathers. Fourth primary quill longest and *considerable longer* than the fifth.

"*Male adult.*—Throat white, the line of feathers down the middle with black shafts, forming a very narrow black central line, absent in the most adult examples. The fourth primary quill longest, and *considerably longer* than the fifth."

180. ACCIPITER VIRGATUS (Temminck).

INDIAN SPARROW HAWK.

Falco virgatus TEMMINCK, Pl. Col. (1823), **1**, pl. 109.
Accipiter virgatus SHARPE, Cat. Birds Brit. Mus. (1874), **1**, 150 (part); Hand-List (1899), **1**, 253; EVERETT, Ibis (1895), 38.
Accipiter gularis McGREGOR and WORCESTER, Hand-List (1906), 41 (part).

Palawan (*Everett*). Southern India, Ceylon, Andamans, and Greater Sunda Islands.

"*Adult male.*—Above deep blackish slate-color, the nape slightly mottled with white, the crown and wing-coverts a little darker; quills dark brown, shaded with slate-color, without any bars above, the under surface paler and more ashy, inclining to pale rufous near the base of inner web, with blackish cross-bars; tail ashy gray above, whitish ashy beneath, paler at tip, and crossed with three bars of slaty black; ear-coverts and sides of neck slaty gray, the latter washed with rufous; fore part of cheeks and throat buffy white, with a few indistinct blackish shaft-lines here and there; rest of under surface bright vinous-chestnut, much paler on the thighs; abdomen and under tail-coverts white; under wing-coverts rich ocherous, the lower ones and the axillars irregularly barred with brownish. Cere yellow; bill black, lead-color at base; feet pale orange-yellow; iris yellow. Length, 279; culmen, 19; wing, 168; tail, 129; tarsus, 48.

"*Adult female.*—A little larger than the male. Length, 330; wing, 188; tarsus, 56." (*Sharpe.*)

181. ACCIPITER MANILLENSIS (Meyen).

PHILIPPINE SPARROW HAWK.

Nisus manillensis MEYEN, Beitr. (1834), 694, pl. 9.
Accipiter virgatus SHARPE, Cat. Birds Brit. Mus. (1874), **1**, 150 (part).
Accipiter manillensis GRANT, Ibis (1897), 212; SHARPE, Hand-List (1899), **1**, 254; McGREGOR and WORCESTER, Hand-List (1906), 41.
Accipiter stevensoni TWEEDDALE, Proc. Zool. Soc. (1878), 938, pl. 57.

Cebu (*McGregor*); Guimaras (*Bourns & Worcester*); Leyte (*Whitehead*); Luzon (*Heriot, Whitehead, McGregor*); Mindanao (*Everett, Bourns & Worcester, Celestino, Goodfellow*); Mindoro (*Everett, Porter*); Negros (*Steere*).

Adult.—Above brown; head, neck, and mantle with an ashy blue wash, basal portion of feathers white or with one or two large white spots; back, rump, and tail-coverts brown without hidden white spots; sides of head brown; chin and throat white with a narrow median brown line; remainder of under parts rich reddish brown or rusty chestnut, most intense and uniform on breast and sides, each feather barred with dark brown and white, the barred portion hidden, more or less, by the wide reddish brown tips; crissum white; wings brown, primaries barred with gray on distal part of inner webs and with ochraceous on basal part; secondaries barred with ochraceous on inner webs; scapulars with two or more large white spots, all concealed; axillars and wing-lining faint ochraceous, barred with brown; tail brown, crossed by five darker brown bars.

Male from Benguet, Luzon.—Length, 254; wing, 156; tail, 114; culmen from base, 18; tarsus, 48; middle toe with claw, 35.

Female from Benguet, Luzon.—Bill black, bluish at base, cere pea-green; iris and eyelids bright yellow; skin about eye and base of bill dull green; nails very dark brown; legs and feet light yellow. Length, 310; wing, 185; tail, 140; culmen from base, 20; tarsus, 53; middle toe with claw, 45.

Breeding female from Cebu.—Bill horn-blue; cere waxy green; iris and eyelids chrome-yellow; legs greenish yellow; nails blackish. Length, 312; wing, 179; tail, 136; culmen from base, 20; tarsus, 56; middle toe with claw, 44.

Immature male.—Upper parts earthy brown; head and mantle slightly bluish ash; feathers of wings, mantle, rump, and upper tail-coverts edged with rusty brown; median line on throat incomplete; breast and abdomen white with very wide, seal-brown, shaft-stripes; sides and flanks with some reddish brown cross-bars; thighs white, barred with brown; wing-lining ochraceous with large blackish brown spots.

"*Accipiter manillensis* is, I think, subspecifically distinct from typical *A. virgatus*, and Mr. Whitehead having, in addition to the Museum series, now obtained three adult females, we have a fair number of skins for comparison.

"*Adult female.*—Differs from the female of *A. virgatus* in having the chest, breast, and sides nearly uniform light red in the most adult birds, while in somewhat younger examples the middle of the breast shows distinct cross-bars of reddish brown and white; the under surface on the quills washed with rufous. Wing, 175 to 178; tail, 137 to 139; tarsus, 52 to 53.

"*Adult male.*—Like the male of *A. virgatus.* Wing, 152 to 155; tail, 122 to 124; tarsus, 51." *Grant,* Ibis, (1896), 109.

I have found considerable difficulty in identifying members of the genus *Accipiter* from the Philippines and the preceding descriptions will require revision when more specimens shall have been collected. With some hesitation I have placed *A. stephensoni* as a synonym under *A. manillensis* instead of under *A. gularis.*

Subfamily AQUILINÆ.

Genera.

- a^1. Tail nearly square or slightly forked; or, if decidedly graduated, the wing over 350 mm.
  - b^1. Bill without a distinct tooth on its cutting edge; first primary much shorter than second or third.
    - c^1. Feathers of lores and circumocular region not scale-like; loral bristles present.
      - d^1. Tail not forked.
        - e^1. Tarsus covered to the toes with short thick-set feathers.
          - f^1. Distance between tips of primaries and secondaries much greater than length of tarsus .... **Lophotriorchis** (p. 223)
          - f^2. Distance between tips of primaries and secondaries much less than length of tarsus .... **Spizaëtus** (p. 224)
        - e^2. Tarsus not feathered to the toes.
          - f^1. Nostril a vertical slit; bill extremely compressed; culmen curved throughout its length; size large .... **Pithecophaga** (p. 226)
          - f^2. Nostril round or oval; bill not greatly compressed.
            - g^1. A full, circular, occipital crest; plumage of under parts with numerous round white spots .... **Spilornis** (p. 227)
            - g^2. Crest scanty or wanting; plumage not spotted.
              - h^1. Back of tarsus covered with hexagonal scales; wing, 330 to 380 mm.
                - i^1. Tarsus with hexagonal scales in front; wing falling far short of tip of tail; lower plumage whitish, barred or spotted with brown .... **Butastur** (p. 230)
                - i^2. Tarsus with transverse scutes in front; wing very long, extending beyond end of tail; plumage chestnut and white in adult .... **Haliastur** (p. 233)
              - h^2. Back of tarsus with large transverse plates; wing over 500 mm. **Haliæetus** (p. 232)
      - d^2. Tail slightly forked, middle feathers about 10 mm. shorter than outermost; unfeathered portion of tarsus covered with small round scales. **Elanus** (p. 234)
    - c^2. Feathers of lores and large circumocular area short and scale-like; no hairs about the bill; tarsus covered with long feathers for more than half its length, unfeathered portion with small hexagonal scales on all sides. **Pernis** (p. 235)
  - b^2. Bill with one or two well-developed teeth on its cutting edge; first primary nearly as long as second and usually longer than third.
    - c^1. Head crested; tarsus feathered for half its length .... **Baza** (p. 236)
    - c^2. Head not crested; tarsus feathered at base only and covered with hexagonal scales.
      - d^1. No tubercle in nostril; length less than 200 mm. ...... **Microhierax** (p. 238)
      - d^2. A tubercle in center of nostril; length more than 250 mm.. **Falco** (p. 239)
- a^2. Tail distinctly graduated; bill shorter; feet smaller and weaker; middle toe without claw two-thirds to three-fourths of tarsus; wing less than 250 mm. **Cerchneis** (p. 243)

Genus LOPHOTRIORCHIS Sharpe, 1874.

Cutting edge of bill sinuate; a narrow occipital crest about 60 mm. long; wing moderate in length; first primary very short; third and fourth subequal; inner web of first four quills abruptly and deeply cut; legs closely feathered to base of toes which are covered with small hexagonal scales; claws strong and curved.

182. **LOPHOTRIORCHIS KIENERI** (Geoffroy St. Hilaire).

RUFOUS-BELLIED HAWK.

Astur kienerii GEOFFROY ST. HILAIRE, Mag. de Zool. (1835), cl. 2, pl. 35.

Lophotriorchis kieneri SHARPE, Cat. Birds Brit. Mus. (1874), **1**, 255; Hand-List (1899), **1**, 262; GRANT, Ibis (1895), 438; MCGREGOR and WORCESTER, Hand-List (1906), 42.

Luzon (*Heriot*, *Whitehead*); Marinduque (*Steere Exp.*); Mindanao (*Steere Exp.*, *Celestino*); Panay (*Steere Exp.*); Sibuyan (*McGregor*); Tablas (*Celestino*). Malay and Indian Peninsulas, Lesser Sunda and Indo-Malayan Islands, Indo-Chinese provinces, Ceylon, Celebes.

"*Adult.*—Above black, with an occipital crest 60 mm. in length; ear-coverts somewhat mixed with whitish; cheeks, throat, and breast pure white, with a few narrow black shaft-lines on the side of the latter; rest of under surface, including under wing- and tail-coverts, tawny rufous, streaked with black shaft-stripes, rather broader on the flanks, where they are more merged; wings black, some of the feathers externally brownish, the inner lining of quills whitish ashy, with a few blackish bars on the inner web of the primaries, the secondaries narrowly tipped with white; tail black, very slightly tipped with whity brown, and with indications of brown cross-bands under certain lights, the lower surface of the tail ashy white, with a subterminal brown bar. Cere yellow; bill leaden blue; feet yellow, claws black; iris brown. Length, 533; culmen, 38; wing, 358; tail, 211; tarsus, 74." (*Sharpe.*)

Immature male.—Upper parts earthy brown, lighter on crown, the feathers tipped with white; forehead all white; long crest-feathers blackish brown; a black patch in front of and over eye; wing-coverts like the back; primaries and secondaries blackish brown, tipped with white; tail back; primaries and secondaries blackish brown-tipped with white; tail blackish brown, tipped with white and crossed by about nine lighter bars; entire under parts, except a brown patch on each flank, pure white. Wing, 370; tail, 225; culmen from base, 35; tarsus, 69; middle toe with claw, 72.

The sexes are similar in color. A male from Sibuyan measures: Wing, 340; tail, 190; culmen from base, 34; tarsus, 72. A female from northern Mindanao measures: Wing, 360; tail, 210; culmen from base, 35; tarsus, 66.

Genus SPIZAËTUS Vieillot, 1816.

Bill compressed; culmen rapidly curved from base to tip; edge of upper mandible sinuate; nostril large and oval; occipital crest short and slightly pointed; wings moderate, fourth or fifth quill longest; secondaries long, falling short of primaries by about length of middle toe without claw; tarsus covered to the toes with short thick-set feathers; top of toes covered with small irregular scales.

Species.

a^1. Under parts white with bold brown markings on breast; thighs brown with fine white cross-bars.......... **philippensis** (p. 224)
a^2. Under and upper parts uniform blackish brown.......... **limnæëtus** (p. 225)

183. SPIZAËTUS PHILIPPENSIS Gurney.

PHILIPPINE HAWK EAGLE.

Spizaetus philippensis GURNEY, in Gould's Birds Asia (1863), pt. 15.
Spizaetus philippinensis SHARPE, Cat. Birds Brit. Mus. (1874), **1**, 261 (footnote).
Limnaëtus philippensis WALDEN, Trans. Zool. Soc. (1875), **9**, pt. 2, 141, pl. 24.
Spizaëtus philippinensis SHARPE, Hand-List (1899), **1**, 264; MCGREGOR and WORCESTER, Hand-List (1906), 42.

Basilan (*Steere Exp., Bourns & Worcester*); Luzon (*Gevers, Heriot, Whitehead*); Masbate (*Steere Exp.*); Mindoro (*Porter*); Negros (*Everett, Steere Exp.*); Palawan (*Platen*); Siquijor (*Bourns & Worcester*).

"The general color of the upper surface in this species is a dark umber-brown; but the base of the feathers of the creast is white and the margins of the other occipital feathers are of a light yellowish brown. Some of the scapulars and other alar feathers (especially the latter) are slightly tipped with the same; the tail, which is of a somewhat lighter brown than the back, is tipped with a very narrow edging of white, and is also crossed by seven blackish brown bars, the upper one, however, being somewhat indistinct, and the two lower being separated by an interval which is twice the breadth of the spaces between the other bars. The throat has a broad blackish band running down the center, with two similar and nearly parallel bands proceeding from the corners of the mouth, the three bands all merging in a cluster of dark brown laccolate marks upon the upper portion of the breast, the intervals between these markings, and also the whole sternal and abdominal regions, being tinged with a yellowish rufous; the under tail-coverts are barred with brown and white, the former bars being much broader than the latter; and the thighs and tarsi are marked throughout their length with narrow, equidistant, transverse bars of the same color. Length, 635; crest, 63; wing, 375; tail, 292; tarsus, 89; middle toe with claw, 76." (*Sharpe.*)

A rare species found only in forest. A male from Lubang measures: Length, 610; wing, 390; tail, 250; culmen from base, 38; tarsus, 97.

184. SPIZAËTUS LIMNÆËTUS (Horsfield).

CHANGEABLE HAWK EAGLE.

Falco limnæëtus HORSFIELD, Trans. Linn. Soc. (1821), **13**, pt. 1, 138.
Spizaetus limnaetus SHARPE, Cat. Birds Brit. Mus. (1874), **1**, 272.
Spizaëtus limnaëtus SHARPE, Hand-List (1899), **1**, 264; OATES, Cat. Birds' Eggs (1902), **2**, 274; MCGREGOR and WORCESTER, Hand-List (1906), 42.

Calamianes (*Bourns & Worcester*); Lubang (*McGregor*); Mindanao (*Platen*); Mindoro (*Everett*); Palawan (*Whitehead, Platen*). Burmese provinces, Malay Peninsula, northeastern Bengal, Greater Sunda Islands, Assam, and the Himalayas.

"*Adult.*—Above and below deep chocolate-brown, inclining to blackish on the head and back, the quills and tail blackish, the shafts of the latter brownish, the inner webs of the quills clear ashy; tail-feathers below ashy white, brownish toward the tips, the penultimate ones with remains of irregular cross-markings. Cere yellowish; feet pale yellow; iris bright yellow. Length, 635; culmen, 43; wing, 406; tail, 279; tarsus, 104.

"*Young* (*type of species*).—Above clear brown, with faint terminal margins of fulvous-brown, the buff-colored bases showing very conspicuously on all the upper parts, but especially distinct on the wing-coverts, which are also broadly margined with buffy white; quills deep brown, the secondaries lighter and more purplish brown, broadly tipped with buffy white, and indistinctly barred with darker brown, plainer on the inner web, especially underneath, where it is ashy white on the primaries and grayish on the secondaries; lower back and rump pale brown, the upper tail-coverts brownish buff; tail brown, tipped with buffy white and crossed with six equidistant bands of darker brown; head and neck whitish buff, the sides of the latter washed with sandy rufous, and mottled with dark brown in the centers of the feathers; under surface of body buffy white, washed with pale fawn-color on the sides of the body and thighs, with a few indistinct spots of the same on the chest; under wing-coverts white, spotted with dark brown, the spots larger on the greater series. Iris brownish. Length, 610; wing, 394; tail (not fully grown), 241; tarsus, 94.

"Another young bird, collected by Mr. Wallace, is rather larger in general bulk than the foregoing example, though having the wing of the same length. It is purer white below, with a shade of dark brown on the lower flanks, and a few distinct oval spots of brown on the breast. The center tail-feather has seven bands of dark brown.

"*Nestling.*—Covered with snow-white down, the crown of the head inclining to fawn-color, the sprouting feathers blackish brown, the greater wing-coverts tipped with white; the few breast-feathers visible white, with broad blackish cross-bars." (*Sharpe.*)

A male was taken on Lubang Island. Iris brown, bill, cere, and nails black; feet pale yellow. Length, 610; wing, 400; tail, 260; culmen from base, 37; tarsus, 98. This species is an inhabitant of deep forest and is seldom seen.

Genus PITHECOPHAGA Grant, 1896.

Bill deep, greatly compressed, depth of upper mandible twice its width at edge of cere; culmen greatly curved for its entire length; nostril in a vertical slit near margin of cere; a very full crest of long feathers; wings rounded, rather short; inner webs of primaries slightly narrowed from middle to tip; tarsus slightly feathered in front at base; a row of transverse plates in front, sides and back with small hexagonal scales; feet powerful; tail-feathers wide and slightly graduated.

185. **PITHECOPHAGA JEFFERYI** Grant.

MONKEY-EATING EAGLE.

Pithecophaga jefferyi GRANT, Bull. Brit. Orn. Club (1896), **6**, 17; Ibis (1897), 214, pl. 5, text figs. 1 to 4; WHITEHEAD, Ibis (1899), 90; SHARPE, Hand-List (1899), **1**, 265; MCGREGOR, Bull. Philippine Mus. (1904), **4**, 15; Phil. Jour. Sci. (1907), **2**, sec. A, 297; MEARNS, Proc. Biol. Soc. Wash. (1905), **18**, 73; MCGREGOR and WORCESTER, Hand-List (1906), 42.

Pitheeophaga jefferi CLEMENS, Condor (1907), **9**, 92 (photo).

Leyte? (*Whitehead*); Luzon (*Iekis*); Mindanao (*Keller, Clemens, Farrel*); Samar (*Whitehead, Bourns & Worcester*).

"Top of head pale whitish buff with dark middles to the feathers, which are rather narrow and pointed, especially those on the occiput, which form a long full crest; general color above rich brown, most of the feathers with paler margins, especially the quill-feathers and wing-coverts; tail-feathers dark brown, the two median pairs with wide dark bands; shafts of quills and tail-feathers creamy white; under parts uniform creamy white; thighs and long flank-feathers with reddish brown shaft-stripes. Length, about 840; bill, greatest depth measured from base of cere to ridge of culmen, 38; from base of cere to tip, 38; wing, 525; tail, 381; tarsus, 118; middle toe without claw, 68; claw, measured in a straight line from base to tip, 37; hind toe without claw, 46; claw, 51." (*Grant.*)

"Iris dull creamy brown, with an outer ring of brownish red, the two colors melting into one another and not sharply defined; face and base of bill dull french-blue, tip of bill black; legs and feet dull yellow; claws black." (*Whitehead.*)

Grant's original description given above is quite sufficient to identify this remarkable eagle, and agrees with a specimen before me, but in at least two specimens which I have examined there were conspicuous black shaft-lines on the feathers of chin and jaw. This may have been due to a more adult plumage than the one described by Grant. Respecting the size of this bird Grant says in part: "The depth of the bill is greater than that of any known bird of prey, except Pallas's sea eagle (*Haliaëtus pelagicus*), in which it is sometimes a trifle greater, while such extreme narrowness, compared with the depth, is quite unique in birds of this order. It is also among some parrots, such as the black cockatoo (*Microglossus aterrimus*), that we find a bill approaching this type, but in none of these is it laterally compressed to the same extent. The high vaulted nasal opening, set almost vertically, is another peculiar character. The naked tarsi and feet approach those of the harpy eagle (*Thrasaëtes harpyia*) in size and strength, and the scaling of the tarsi is remarkably similar. Strange as it may seem, we have little doubt that the harpy is the nearest known ally of the present species."

Measurements of several specimens have been given by me in the Philippine Journal of Science and they need not be repeated here.

Genus SPILORNIS Gray, 1840.

Culmen straight to edge of cere, from there strongly curved to tip; cutting edge of bill without notch or sinuation; a large nearly naked space between eye and bill; occipital crest full; first primary short, fifth longest and but little longer than secondaries; tarsus feathered in front for a short distance, covered throughout with hexagonal scales.

Species.

- a^1. Chest uniform brown without white spots .... **bacha** (p. 227)
- a^2. Chest brown with numerous large white spots.
  - b^1. Breast and abdomen darker; chin and throat blue-gray.... **holospilus** (p. 228)
  - b^2. Breast and abdomen lighter; chin and throat light gray.. **panayensis** (p. 229)

186. SPILORNIS BACHA (Daudin).

MALAY SERPENT EAGLE.

Falco bacha Daudin, Traite (1800), **2**, 43.

Spilornis bacha Sharpe, Cat. Birds Brit. Mus. (1874), **1**, 290; Hand-List (1899), **1**, 299; McGregor and Worcester, Hand-List (1906), 42.

Balabac (*Everett*); Calamianes (*Bourns & Worcester*); Palawan (*Whitehead, Platen, Steere Exp., Bourns & Worcester, Everett*). Malayan Peninsula, Greater Sunda Islands.

"*Adult male.*—Head largely crested, jet black with white bases to the feathers; upper surface of body brown, the wing-coverts with a few minute spots of white on the margins of the feathers; quills black, primary-coverts and secondaries narrowly tipped with white, the primaries somewhat shaded with ashy gray externally and crossed with two brown bands, one broad and very distinct, the other basal and nearly obsolete, these bars less distinct above on the secondaries, but rather plainer below; upper tail-coverts and tail blackish brown, slightly tipped with whitish, the latter crossed with a broad median band of pale ashy brown, with indications of a second basal one only visible below; sides of head and throat blackish, cheeks somewhat shaded with ashy gray; remainder of under surface of body brown, the chest uniform, the breast with distinct oval spots of white on both webs, more numerous on thighs and inclining to bars on flanks and under tail-coverts; under wing-coverts paler brown, thickly varied with oval spots of white, larger and further apart on the axillars and greater coverts. Cere yellow, bill black, horn-colored at tip; feet orange-yellow; iris yellow. Length, 622; culmen, 48; wing, 406; tail, 254; tarsus, 86.

"*Adult female.*—Similar to the male but larger. Length, 660; wing, 419; tail, 267; tarsus, 95." (*Sharpe.*)

187. SPILORNIS HOLOSPILUS (Vigors).

PHILIPPINE SERPENT EAGLE.

Buteo holospilus VIGORS, Proc. Zool. Soc. (1831), 96.

Spilornis holospilus SHARPE, Cat. Birds Brit. Mus. (1874), 1, 293; Hand-List (1899), 1, 266; GRANT, Ibis (1894), 503; ibid. (1896), 110; McGREGOR and WORCESTER, Hand-List (1906), 42.

Basilan (*Everett, Steere Exp.*); Bongao (*Everett*); Catanduanes (*Whitehead*); Cebu (*Everett, Bourns & Worcester*); Leyte (*Everett*); Luzon (*Everett, Meyer, Steere Exp., Whitehead, McGregor*); Marinduque (*Steere Exp.*); Mindanao (*Cuming, Everett, Koch & Schadenberg, Steere Exp., Bourns & Worcester, Celestino, Goodfellow*); Mindoro (*Steere Exp., Everett, Porter*); Samar (*Steere Exp., Bourns & Worcester*); Sulu (*Bourns & Worcester*); Tawi Tawi (*Bourns & Worcester*).

"*Adult.*—Above pale brown with a purplish gloss and the feathers irregularly spotted or margined with white at their tips; hind neck and interscapulary region lighter than the rest of the back, the feathers tipped with pale rufous, and ocellated with large rounded spots of white; head much crested, ashy black, the feathers slightly margined with rufous and spotted with white; sides of face and throat ashy gray, the latter varied with oval markings of whitish; under surface of body very light tawny, ocellated all over with spots or half bars of white, the latter more distinct on the under tail-coverts; the thighs and under wing-coverts a little darker and more thickly spotted with white; wing-coverts dark brown, minutely spotted with white; primaries brown, whitish on inner web, black at tip, and crossed with a black bar about the middle of the feather; secondaries pale brown like the back, with white tips and faint indications of obsolete whitish bars on the feathers; upper tail-coverts brown, darker before the tips, which are white, and having remains of rounded white spots concealed or obscured by the brown color of the feathers; tail pale brown, narrowly tipped with whity brown, and crossed with two broad bands of blackish brown, one subterminal and the other about the middle of the tail, a band of light brown before the lower black band, and a broad band of whity brown between the two black bands. Length, 635; culmen, 46; wing, 368; tail, 254; tarsus, 90.

"*Young.*—Above brown, the feathers tipped with pale rufous, the white bases very conspicuous especially on the wing-coverts, which appear lighter than the back; head, which is largely crested, and hind neck rufous, the feathers buffy white at the base; with a chestnut-brown subterminal spot; ear-coverts and sides of face uniform dark brown; throat white; rest of under surface of body fulvous washed with rufous, more especially on the breast-feathers, which have dark brown shafts; under wing-coverts fulvous, washed with tawny rufous; primaries dark brown, secondaries rather lighter like the back, and tipped with buffy white, all the quills white at base of inner web, and barred with darker brown, showing more plainly underneath, as the interspaces are whitish ashy; tail brown, washed with rufous near the base, and slightly tipped with fulvous, crossed with four or five bars of dark brown, the basal ones indistinct and more or less dissolved into mottlings." (*Sharpe.*)

"From Cape Engaño we have received an immature female, which has the head and upper mantle whitish buff, with brown shaft-spots; there is the beginning of a short deep black superciliary band extending above the eye, while a few feathers of a more adult plumage are beginning to make their appearance on the occiput; these are brownish red, with a white subterminal black tip. (The appearance of this black eyebrow-stripe is very puzzling, as it does not appear in the adult plumage; it may be part of an intermediate plumage or fade with age and wear to the dark brown of the adult.) General color above brown, with irregular, ill-defined reddish white spots on either web; tail dark brown with two wide brownish white bands across the terminal half; chin and throat whitish buff. Sides of the head and under parts pale buff, with brownish red shaft-stripes, widest on the terminal half; thighs buff, with wide chestnut middles, constricted at intervals, so as to form ill-defined buff spots down the sides of the feathers, one or two half grown adult feathers on the left thigh. Wing, 386; tail, 272; tarsus, 86.

"Although somewhat peculiar in plumage and large in size, I have no hesitation in referring this specimen to *S. holospilus,* and Mr. Whitehead shares the same opinion." (*Grant.*)

188. SPILORNIS PANAYENSIS Steere.

PANAY SERPENT EAGLE.

Spilornis panayensis Steere, List Birds & Mams. Steere Exped. (1890), 7; Grant, Ibis (1896), 527; Whitehead, Ibis (1899), 93; Sharpe, Hand-List (1899), 1, 266; McGregor and Worcester, Hand-List (1906), 42.
Spilornis holospilus Bourns and Worcester, Minnesota Acad. Nat. Sci. Occ. Papers (1894), 1, 44 (part).

Si-cub', Bohol.

Bohol (*McGregor*); Guimaras (*Steere Exp.*); Masbate (*Bourns & Worcester, McGregor*); Negros (*Steere Exp., Bourns & Worcester, Keay*); Panay (*Steere Exp.*); Romblon (*Bourns & Worcester, McGregor*); Sibuyan (*Bourns & Worcester, McGregor*); Tablas (*Bourns & Worcester, Celestino*).

"*Adult male.*—Head black, feathers of crest sulphur-white at base, then black, narrowly edged with whitish; rest of upper surface with wings light ashy brown, all the feathers edged with whitish. Tail broadly tipped with white and with two broad whitish bars and part of a third basal one; throat bluish ash, unmarked; rest of under surface pale cinnamon, shaded with ash and spotted and banded as in *S. holospilus*. Length, 502; wing, 317; tail, 229; tarsus, 71. Distinguished from *S. holospilus* by its small size and pale coloring." (*Steere.*)

The validity of this species is somewhat doubtful. Bourns and Worcester consider that it "was founded on differences due to change of season and to individual variation." Grant thinks "that *S. panayensis* may fairly be recognized as a distinct form."

Genus BUTASTUR Hodgson, 1843.

Bill small, its edge slightly sinuate; wings moderate, primaries cut on inner web; first primary short; secondaries much shorter than primaries; tarsus feathered in front for a short distance, a row of large hexagonal scales in front, rest of tarsus with small hexagonal scales.

189. **BUTASTUR INDICUS** (Gmelin).

TIC-WEE BUZZARD.

Falco indicus GMELIN, Syst. Nat. (1788), **1**, pt. 1, 264.

Butastur indicus SHARPE, Cat. Birds Brit. Mus. (1874), **1**, 297; Hand-List (1899), **1**, 266; OATES, Cat. Birds' Eggs (1902), **2**, 278; MCGREGOR and WORCESTER, Hand-List (1906), 43.

Lim-bas', Manila and Lubang; *tic-weé*, in general; *eu-yab'*, Calayan.

Balabac (*Everett*); Basilan (*Steere Exp., McGregor*); Batan N. (*Edmonds* *); Bohol (*Everett, Steere Exp.*); Cagayancillo (*McGregor*); Cagayan Sulu (*Mearns*); Calamianes (*Bourns & Worcester, McGregor*); Calayan (*McGregor*); Cebu (*Everett, Steere Exp., Bourns & Worcester, McGregor*); Cuyo (*Meyer*); Fuga (*Whitehead*); Guimaras (*Meyer*); Lubang (*McGregor*); Luzon (*Meyer, Everett, Steere Exp., Whitehead, McGregor*); Masbate (*Bourns & Worcester*); Mindanao (*Steere, Koch & Schadenberg, Steere Exp., Goodfellow*); Mindoro (*Everett, McGregor, Porter*); Negros (*Steere Exp., Bourns & Worcester, Keay*); Palawan (*Everett, Whitehead, Platen, Bourns & Worcester, White*); Panay (*Steere, Steere Exp., Bourns & Worcester*); Samar (*Bourns & Worcester*); Sibay (*McGregor & Worcester*); Siquijor (*Steere Exp., Bourns & Worcester*); Sulu (*Bourns & Worcester*); Tawi Tawi (*Bourns & Worcester*); Verde (*McGregor*). Ussuri-land; Japan; China to Malay Peninsula; Celebes.

"*Adult.*—Above brown, inclining to ashy on head and upper back, and to rufous on lower back, rump, and upper tail-coverts, the latter of which are plainly barred and broadly tipped with pure white; forehead white;

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* Through the interest of Mr. William Edmonds, teacher in the Batanes, a specimen of the tic-wee buzzard from Batan has been sent to the Bureau of Science. We are under obligations to Mr. Otto Sheerer for two live specimens of this species which were caught in Batan. Still another tic-wee buzzard was captured on board the U. S. S. *Albatross* in the vicinity of Camiguin Island, north of Luzon.

sides of face clear ashy gray; sides of neck ashy brown, uniform with the interscapulary region; wing-coverts rufous-brown, mottled with clearer rufous; primary-coverts rufous, externally mottled and broadly tipped with black; quills rufous, narrowly tipped with buffy white, primaries brown externally and toward their tips, also barred with dark brown on their inner webs; the secondaries ashy brown, inclining gradually to whity brown at their tips, washed with rufous and barred with dark brown; the lower surface of the wing creamy white on the inner webs of the quills, somewhat washed with rufous; tail ashy brown, whity brown at tip and crossed with three or four broad bars of blackish brown, the lower surface ashy white, the bars showing more plainly, except on the outermost feather, where they are obsolete; throat white, with a mesial line of ashy brown, as well as two not very distinct moustachial streaks; upper breast ashy brown, washed with rufous, the lower breast and abdomen barred with white and rufous-brown, the latter bars decreasing toward the vent and thighs, and totally absent on the under tail-coverts; under wing-coverts with slight cross-markings of pale rufous. Bill leaden black, yellow at base; cere and feet yellow; iris yellow. Length, 470; culmen, 33; wing, 333; tail, 201; tarsus, 61.

"*Adult female.*—Larger. Length, 470; wing, 345; tail, 213; tarsus, 62.

"*Young.*—Considerably different from the adult. Above dark brown, the wing-coverts washed with rufous and tipped with dull white, the greater ones with rufous or rufous-white spots on both webs, giving a mottled appearance to these parts; forehead and eyebrow creamy white; crown and hind neck brown, the feathers margined with creamy white, giving a striped appearance, the latter also slightly washed with rufous; sides of face ashy brown, streaked with darker brown, the fore part of the cheeks white; under surface of body creamy buff, the throat with a central blackish streak on the lower part; center of chest streaked with dark brown, the breast with pale chestnut, becoming spade-shaped spots on the flanks, but narrowing to small streaks on the thighs, and disappearing altogether on the under tail-coverts, which are creamy buff; under wing-coverts creamy buff, with a few rufous-brown marks on the lower series, and bars of the same on the axillars; upper tail-coverts brown, white at the base and at tip, and having the outer margin also white; tail ashy brown, tipped with pale rufous-brown and crossed with five bars of darker brown, the subterminal one broader; quills dark brown, the secondaries paler, the base of the inner web white, with remains of ashy bars on the inner secondaries. Cere and feet yellow; bill black; iris yellow." (*Sharpe.*)

"Exceedingly common throughout the group. Most abundant about scattering trees in open fields. Breeds." (*Bourns and Worcester MS.*)

The tic-wee buzzard is the commonest hawk in the Philippines and on Calayan and Batan Islands it occurs in immense flocks during migration.

Genus HALIÆETUS Savigny, 1809.

Bill stout, culmen straight at base, then greatly curved, with a long overhanging hook, edge sinuate; tail rounded, its feathers wide and pointed; tarsus heavy, feathered for a short distance in front; a row of large transverse plates in front, a row of large hexagonal scales behind, sides covered with small hexagonal scales.

190. HALIÆETUS LEUCOGASTER (Gmelin).

WHITE-BREASTED SEA EAGLE.

Falco leucogaster GMELIN, Syst. Nat. (1788), **1**, pt. 1, 257.
Haliaetus leucogaster SHARPE, Cat. Birds Brit. Mus. (1874), **1**, 307.
Haliaëtus leucogaster SHARPE, Hand-List (1899), **1**, 267; OATES, Cat. Birds' Eggs (1902), **2**, 279; MCGREGOR and WORCESTER, Hand-List (1906), 43.

Ma-na-ol', Ticao, Manila.

Bantayan (*McGregor*); Batan (*McGregor*); Basilan (*Bourns & Worcester, McGregor*); Bohol (*McGregor*); Bongao (*Everett*); Calamianes (*Bourns & Worcester*); Calayan (*McGregor*); Camiguin N. (*McGregor*); Cebu (*McGregor*); East Bolod (*Mearns*); Fuga (*Whitehead*); Luzon (*Bourns & Worcester*); Masbate (*Bourns & Worcester, McGregor*); Mindanao (*Steere Exp.*); Mindoro (*Bourns & Worcester, McGregor, Porter*); Palawan (*Whitehead, Platen, Bourns & Worcester, White*); Romblon (*Bourns & Worcester*); Samar (*Steere Exp., Bourns & Worcester, Whitehead*); Semirara (*McGregor & Worcester*); Sibuyan (*Bourns & Worcester, McGregor*); Siquijor (*Bourns & Worcester*); Sulu (*Bourns & Worcester*); Tablas (*Bourns & Worcester, Celestino*); Tawi Tawi (*Bourns & Worcester*); Ticao (*McGregor*); Verde (*McGregor*); Y'Ami (*McGregor*). Indian Peninsula; Indo-Chinese Provinces; Malay Peninsula to Australia and Oceania.

Adult.—Entire head, neck, and lower parts white, many of the feathers with blackish shafts; tail blackish, its terminal third white; primaries blackish with white bases; axillars and wing-lining white; remainder of wings and upper parts bluish slate-gray, with a slight mixture of brown. Male from Ticao: Iris dark; bill at base and cere horn-blue; bill at tip and nails black; legs and toes white. Length, 685; wing, 550; tail, 230; culmen from base, 52; tarsus, 91. The female is said to be slightly larger.

Young.—Head, chin, and throat buffy or pale yellowish white, more or less streaked with light brown; general color brown, darker above, many of the feathers with lighter brown or whitish shaft-lines which widen at the tips; primaries black with whitish bases; end of tail brown, basal two-thirds white mottled with brown.

The white-breasted sea eagle is widely distributed but nowhere in the Philippines is it abundant. In adult plumage it is easily identified by its white under parts. Its nest consists of a mass of sticks and is usually supported by the branches of some large tree. Islets on which there are but a few trees are in particular favor with this species. The eggs are usually spheroidal and white with a few faint markings of reddish brown.

"Common along the seashore. Frequently seen perching on the fish pens of the natives, where it secures abundant food." (*Bourns and Worcester MS.*)

Genus HALIASTUR Selby, 1840.

Bill moderate, compressed, with a long overhanging tip; culmen well curved, cutting edge slightly sinuate; wings long, extending beyond tip of tail; inner webs of primaries abruptly cut; tail nearly square; tarsus feathered in front for about half its length, the lower half with large transverse plates, its sides and back with variously shaped scales; claws strong and well curved.

191. **HALIASTUR INTERMEDIUS** Gurney.

MALAYAN BRAHMINY KITE.

Haliastur intermedius GURNEY, Ibis (1865), 28; SHARPE, Cat. Birds Brit. Mus. (1874), 1, 314; Hand-List (1899), 1, 268; OATES, Cat. Birds' Eggs (1902), 2, 282; MCGREGOR and WORCESTER, Hand-List (1906), 43.

La-uin', Lubang, Manila; *ba-nog'*, Bohol, Ticao.

Bantayan (*McGregor*); Basilan (*Bourns & Worcester, McGregor*); Bohol (*Steere Exp., McGregor*); Bongao (*Everett*); Buluan off Mindanao (*Mearns*); Calamianes (*Bourns & Worcester*); Catanduanes (*Whitehead*); Cebu (*Murray, Everett, Bourns & Worcester, McGregor*); Cuyo (*McGregor*); Guimaras (*Meyer, Steere Exp.*); Leyte (*Everett*); Lubang (*McGregor*); Luzon (*Meyer, Everett, Bourns & Worcester, Whitehead, McGregor, Seale*); Maestre de Campo (*McGregor & Worcester*); Malanipa (*Murray*); Marinduque (*Steere Exp.*); Masbate (*Bourns & Worcester, McGregor*); Mindanao (*Everett, Murray, Goodfellow*); Mindoro (*Bourns & Worcester, McGregor, Porter*); Negros (*Everett, Bourns & Worcester, Keay*); Panay (*Steere Exp., Bourns & Worcester*); Romblon (*Bourns & Worcester*); Samar (*Steere Exp., Bourns & Worcester*); Sibuyan (*Bourns & Worcester, McGregor*); Siquijor (*Steere Exp., Celestino*); Sulu (*Guillemard, Steere Exp., Bourns & Worcester*); Tablas (*Bourns & Worcester*); Tawi Tawi (*Bourns & Worcester*); Ticao (*McGregor*). Celebes; Malay Peninsula; Greater Sunda Islands; Indo-Chinese Provinces.

Adult.—Entire head and neck, chin, throat, and breast white, with narrow black shaft-lines; rest of the plumage rich chestnut, the shafts blackish, the chestnut most intense on mantle and back; primaries black with light rufous bases; axillars and wing-lining chestnut; tail chestnut, tipped with gray. Length of male, 470; wing, 410; tail, 210; culmen from base, 35; tarsus, 53.

"*Young.*—Above deep brown, the interscapulary feathers inclining to dull maroon toward their tips, the rest of the feathers of the upper surface tipped with rufous, and most of them externally shaded with ashy gray; head and neck pale rufous, with buffy white centers and tips to the feathers, giving a streaked appearance, as in a young *Milvus;* forehead, lores, and sides of face white, with narrow black shaft-lines to the feathers; ear-coverts slightly washed with brown; chin whitish; rest of under surface pale rufous-brown, the shaft-stripes distinct, all the feathers with central streaks of buffy white, the chest-feathers darker, and washed with brown on both margins, thighs and under tail-coverts inclining to maroon; under wing-coverts and axillars clear brown, tipped with rufous or maroon, and centered with black shaft-streaks." (*Sharpe.*)

"Extremely common. Frequently abundant about shipping in the harbors, where it feeds on refuse thrown overboard from the ships. Often seen feeding over surface of fresh-water streams as well. Not infrequently met with hawking over open fields at some distance inland." (*Bourns and Worcester MS.*)

"An egg of the Malayan brahminy kite taken in Borneo is of an elongated elliptical form and plain white. Another, taken in the Philippine Islands, is white, minutely speckled all over with dark brown. Neither specimen shows any trace of gloss. They measure respectively: 49.5 by 35.5; 49.5 by 40.6." (*Oates.*)

The second egg mentioned above was taken in Siquijor by the Steere Expedition.

Genus ELANUS Savigny, 1809.

Bill moderate, edge gently sinuate; culmen strongly curved; wings long, extending beyond tip of tail; primaries not cut on inner webs; tail slightly forked; tarsus feathered in front for half its length, remainder of its surface covered with minute roundish scales.

192. **ELANUS HYPOLEUCUS** Gould.

PHILIPPINE BLACK-WINGED KITE.

Elanus hypoleucus GOULD, Proc. Zool. Soc. (1859), 127; SHARPE, Cat. Birds Brit. Mus. (1874), **1**, 338; Hand-List (1899), **1**, 269; OATES, Cat. Birds' Eggs (1902), **2**, 291 pl. 13, figs. 3; MCGREGOR and WORCESTER, Hand-List (1906), 44.

Bantayan (*McGregor*); Basilan (*Everett*); Bohol (*McGregor*); Bongao (*Everett*); Calamianes (*Bourns & Worcester*); Cebu (*Everett, Bourns & Worcester*); Guimaras (*Steere Exp.*); Luzon (*Jagor, Steere Exp., Whitehead, McGregor*); Mindanao (*Everett, Goodfellow*); Mindoro (*Steere Exp., Bourns & Worcester, Everett, Whitehead, Porter*); Negros (*Steere Exp., Bourns & Worcester, Keay*); Samar (*Whitehead*); Sibuyan (*McGregor*); Sulu (*Burbidge, Bourns & Worcester*); Tawi Tawi (*Bourns & Worcester*). Celebes; Greater Sunda Islands.

Adult.—Above pearl-gray, paler on head and fading to pure white above eyes, on forehead, and sides of neck; lores and a narrow line above eye black; entire lower parts including under surface of wings and tail white; median and lesser coverts black but a few of the inner lesser coverts white; a few small black feathers near edge of wing; primaries and secondaries tipped with white and largely white on inner webs, primary-shafts black; tail-feathers white, except central pair which are gray above.

Male from Bantayan.—Length, 330; wing, 300; tail, 143; culmen from base, 25; tarsus, 36.

Female from Manila.—Bill and nails black; iris carmine; cere, gape, and legs chrome-yellow. Length, 355; wing, 300; tail, 138; culmen from base, 25; tarsus, 34.

An *immature female* from Bohol is like the adult but the wing-feathers, including the black coverts, are widely tipped with white, and the feathers of crown and nape are edged with white and a little buff giving the head a streaked appearance. Iris light yellow; bill and nails black; cere waxy yellow; feet bright chrome-yellow.

"*Female,* not quite adult (type).—Above ashy gray, scapulars and quills plainly tipped with white, and washed with rusty brown, especially on the interscapular region; crown white, the hinder part inclining to ashy gray, plainly streaked with rusty brown; wing ashy gray, primaries darker, all the quills, as well as the coverts tipped with white, the lesser and median coverts black, forming a conspicuous shoulder patch; tail white, shaded with ashy toward the tip, the two center feathers entirely ashy gray; under surface of body entirely white, including the under wing-coverts; under surface of quills deep ashy gray toward the tip, whitish at base. Cere yellow; bill black; feet yellow; iris red. Length, 368; culmen, 28; wing, 305; tail, 157; tarsus, 38." (*Sharpe.*)

"Quite abundant about the open fields, but difficult to shoot. Iris bright red; legs and feet yellow; nails black; bill black, except cere and gape which are bright yellow." (*Bourns and Worcester MS.*)

"The sole egg of the Philippine black-winged kite in the collection is a blunt oval, smooth, and devoid of gloss. It is white, thickly smeared especially at the large end, with two shades of brown. It measures: 41.9 by 31.7 mm." (*Oates.*)

The egg described above was collected by Everett in Mindoro, December 14.

Genus PERNIS Cuvier, 1817.

Bill small, elongate, the cutting edge regular or slightly sinuate; nostril a narrow slit; side of head covered with short close-set feathers; no bristles nor hairs about base of bill; wings long, primaries obliquely cut on inner webs; tail composed of long wide feathers; tarsus feathered in front for its upper half, its remaining surface covered with small scales.

193. **PERNIS PTILORHYNCUS** (Temminck).

CRESTED HONEY BUZZARD.

Falco ptilorhyncus Temminck, Pl. Col. livr. 8 (1821), **1**, 44.

Pernis ptilonorhynchus Sharpe, Cat. Birds Brit. Mus. (1874), **1**, 347; Hand-List (1899), **1**, 271; Oates, Cat. Birds' Eggs (1902), **2**, 293, pl. 14, fig. 4; McGregor and Worcester, Hand-List (1906), 44.

Pernis cristatus Blanford, Fauna Brit. Ind. Bds. (1895), **3**, 406 (part), fig. 98 (head); Grant, Ibis (1897), 213.

Cebu (*Bourns & Worcester*); Luzon (*Whitehead, Bourns & Worcester*); Mindanao (*Everett, Celestino, Goodfellow*); Mindoro (*McGregor*); Palawan (*Whitehead, Platen*); Romblon (*McGregor*); Samar (*Whitehead*); Sibuyan (*Bourns & Worcester*); Sulu (*Platen, Bourns & Worcester*); Tablas (*Celestino*). Indian and Malay Peninsulas, Indo-Chinese countries, Ceylon, Greater Sunda Islands.

Adult.—Upper parts brown, many of the feathers white basally; top of head, neck, and sides of neck light brown with heavy black shaft-lines; long crest-feathers black; scale-like feathers of lores and side of head ashy gray; chin, throat, and breast white with black shaft-lines and many feathers with long wide terminal spots of black or dark brown on the throat, forming a median and two lateral stripes; abdomen, thighs, and under tail-coverts light brown, barred with white; under surface of primaries and secondaries light gray, banded with dark brown, the basal bars broken; axillars and wing-lining tawny-brown, the latter mottled with white; tail from above light brown, with five or six wide bars of dark brown; from below the tail is light gray, crossed by dark brown bars. Bill black, its base bluish; iris bright yellow; legs dull yellow; nails black. A male from Mindoro is 570 in length; wing, 390; tail, 285; culmen from base, 33; tarsus, 45; middle toe with claw, 58.

A breeding female, taken in Mindoro, February 19, 1905, is 610 in length; wing, 395; tail, 290; culmen from base, 36; tarsus, 44.

Genus BAZA Hodgson, 1836.

Bill stout, culmen well curved; cutting edge with two teeth, in young birds there is often a single tooth; cere small; nostrils narrow, slightly oblique; crest long and narrow; wing moderate, third or fourth quill longest; tail square; tarsus short, feathered in front for half its length, naked part reticulate. The key is based on the plumage of the young females; the adult of *leucopais* is unknown.

Species.

a^1. Breast banded with pale rufous; a black streak down center of throat.
magnirostris (p. 236)
a^2. Breast not banded; no black streak on throat; entire under parts pure white.
leucopais (p. 237)

194. BAZA MAGNIROSTRIS Gray.

LARGE-BILLED BAZA.

Baza magnirostris Gray, Cat. Acciptr. Brit. Mus. (1844), 19; Sharpe, Cat. Birds Brit. Mus. (1874), 1, 356, pl. 10, fig. 1; Hand-List (1899), 1, 271; McGregor and Worcester, Hand-List (1906), 44.

Luzon (*Cuming*); Mindanao (*Platen, Goodfellow*).

"*Nearly adult female.*—Crown and long occipital crest black; feathers over eye, as well as the sides and back of the neck tawny rufous, the latter spotted with black; sides of face grayish washed with rufous; upper surface of body brown, with a gloss of purplish brown, some of the feathers also shaded with greenish in certain lights; quills brown, tipped with whitish, barred with purplish brown, the secondaries very much paler brown, against which the bands of darker brown contrast strongly, especially the subterminal one, which has a distinct purplish gloss; under surface of quills grayish white, with dark brown bands, pure white near the base; tail brown, tipped with whity brown, and crossed by three bands of dark purplish brown, the subterminal one being very broad, and glossed with greenish; under surface of tail grayish white, like that of the wings, the subterminal band distinctly marked, the basal ones very faintly, excepting on the outermost feathers, which have a patch of dark brown on the outer web, extending on to the inner one also; under surface of body whitish, broadly streaked on sides of throat and chest, banded on breast, and spotted on under tail-coverts with pale rufous, darker and more inclining to rufous-brown on flanks, sides of body, and axillars; down the center of the throat extending to the fore neck, a broad black streak; under wing-coverts buffy white, spotted with pale rufous, the lower ones barred with this color. Bill horn-black, browner on lower mandible; feet yellow. Length, 444; culmen, 38; wing, 312; tail, 206; tarsus, 38.

"*Adult male* (*type*).—Another specimen in the national collection (British Museum) differs from the foregoing in not having so stout a bill, in the sides of the face being more conspicuously gray, this shade also extending over the throat and breast, the former of which is narrowly streaked with grayish down the center; the crown of the head is blackish, feathers of the forehead being edged with rufous; the sides and hind part of the neck similarly marked, producing a striped appearance; occipital crest black, with a narrow white tip to one or two of the feather; the bands on the breast very broad and pale rufous. Length, 389; culmen, 34; wing, 292; tail, 190; tarsus, 38. This would apparently be the adult male, and the other perhaps a female not quite adult." (*Sharpe.*)

195. **BAZA LEUCOPAIS** Sharpe.

WHITEHEAD'S BAZA.

Baza leucopias SHARPE, Ibis (1888), 195 (error).

Baza leucopais WHITEHEAD, Ibis (1890), 43, pl. 2; SHARPE, Hand-List (1899), 1, 271; MCGREGOR and WORCESTER, Hand-List (1906), 44.

Palawan (*Whitehead*); Romblon (*Bourns & Worcester*); Samar (*Bourns & Worcester*).

"*Young female.*—General color above brown, with whitish brown margins to the feathers; lesser wing-coverts brown, the inner ones rufous, with brown centers; median and greater coverts pale rufous, white externally toward the ends and round the tips; alula dark brown, externally rufous; primary-coverts uniform dark brown; quills dark brown fringed with white round the ends, and crossed with blackish brown bars, four in number, one subterminal; secondaries paler brown, externally rufous; upper tail-coverts tawny-rufous, edged with white and with dark brown centers; tail-feathers dark brown, narrowly fringed with white at the ends, and crossed with blackish bands, the subterminal one very broad, but not nearly so wide as the preceding interspace; a crest of white feathers, the long ones freckled with brown; head, nape, and hind neck, lores, sides of face, ear-coverts, cheeks, sides of neck, and entire under surface of body pure white, slightly washed with rufous on the head and hind neck; the breast, abdomen, and under tail-coverts washed with creamy buff; the sides of the body and flanks with slight indications of spots of pale tawny buff; under wing-coverts and axillars like the breast; quills below ashy gray, with blackish bars on the primaries. Length, 394; culmen, 29; wing, 274; tail, 178; tarsus, 35.

"The typical [=type] specimen, though manifestly immature, differs thoroughly from the young of *B. sumatrensis,* and I feel sure that the adult bird, when discovered, will be markedly distinct." (*Sharpe.*)

"Rare and shy. Iris, legs, and feet yellow; nails black; bill black, slaty at base; bare flesh of head greenish yellow. One specimen had been eating crabs when shot.

"A male measures 457 in length; wing, 312; tail, 199; culmen, 27; tarsus, 76; middle toe with claw, 40. A female, 457 in length; wing, 305; tail, 208; culmen, 26; tarsus, 64; middle toe with claw, 43." (*Bourns and Worcester MS.*)

The adult of this rare species appears to be undescribed.

Genus MICROHIERAX Sharpe, 1874.

Bill strong; edge of mandible with a double notch forming a sharp tooth; cere small; no crest; first primary nearly equal to second and third which are the longest; secondaries short; tarsus and feet strong; plumage black and white; length less than 200 mm.

Species.

a^1. Slightly smaller .... **erythrogenys** (p. 238)
a^2. Slightly larger .... **meridionalis** (p. 239)

196. MICROHIERAX ERYTHROGENYS (Vigors).

PHILIPPINE FALCONET.

Hierax erythrogenys VIGORS, Proc. Zool. Soc. (1831), 96.

Microhierax erythrogenys SHARPE, Cat. Birds Brit. Mus. (1874), **1**, 369; Hand-List (1899), **1**, 273; MCGREGOR and WORCESTER, Hand-List (1906), 44; MCGREGOR, Philippine Jour. Sci. (1907), **2**, sec. A, 323.

Bohol (*McGregor*); Luzon (*Meyer, Möllendorff, Everett, Steere Exp., Whitehead, McGregor*); Mindoro (*Bourns & Worcester, Porter*); Negros (*Keay*).

Adult (*sexes similar*).—Above, including wings and tail, black with a dark green gloss; below white; sides, thighs, and under tail-coverts black.

Iris brown; bill and nails black; legs dark blue. Length of a male from Mindoro, 160; wing, 110; tail, 68; culmen from cere, 11; tarsus, 20. A male from Bohol measures: Wing, 110; tail, 63; culmen from cere, 13. A female from Luzon: Wing, 110; tail, 66; culmen from cere, 12.

Young.—The immature male resembles the adult but the inner webs of primaries are barred or mottled with white.

"Extremely local in its habits. Often found perching on a dead limb at the top of some tree, and may be met with in exactly the same place day after day. It feeds on insects and often leaves its perch on short flights in pursuit of its prey, promptly returning, however. When shot at but not killed it usually takes but a short flight, and returns at once to its favorite perch. Small flocks frequently found together.

"Iris brown; legs and feet black; bill black. Nine specimens average, 179 in length; wing, 108; tail, 62; culmen, 13; tarsus, 22; middle toe with claw, 21." (*Bourns and Worcester MS.*)

197. **MICROHIERAX MERIDIONALIS** Grant.

GRANT'S FALCONET.

Microhierax meridionalis GRANT, Ibis (1897), 220; SHARPE, Hand-List (1899), 1, 273; McGREGOR and WORCESTER, Hand-List (1906), 44.

Cebu (*Everett, Bourns & Worcester*); Mindanao (*Everett, Koch & Schadenberg, Steere Exp., Celestino, Goodfellow*); Samar (*Whitehead, Bourns & Worcester*).

"*Adult male.*—Similar to the male of *M. erythrogenys*, but considerably larger; the under wing-coverts and inner webs of the primaries uniform black; and belly, vent, and under tail-coverts washed with pale fulvous. Length, 165; wing, 113; tail, 66; culmen (from cere to tip), 13; tarsus, 22. The type of the male is from Zamboanga, southern Mindanao.

"*Adult female.*—Similar to the male, but larger. Length, 183; wing, 117; tail, 70; culmen (from cere to tip), 13; tarsus, 22. The type of the female is from the Island of Samar." (*Grant.*)

Grant's falconet is a species of doubtful validity, but the name may be retained until more specimens have been examined. In *M. erythrogenys* the white bars on the primaries are due to immaturity and are not characteristic of the typical adult male.

Genus FALCO Linnæus, 1758.

Bill stout, culmen strongly curved from front of cere to tip; a well-marked tooth in edge of upper mandible; wings long and pointed, second primary longest, the first and third but little shorter; first primary with a deep notch near its tip; legs, feet, and claws strong, middle toe long; tarsus covered on all sides with small hexagonal scales. The falcons are powerful birds, strong and rapid in flight, and easily recognized by the rapid motion of the wings.

Species.

a^1. Much larger; wing more than 300 mm.
  b^1. Light color from breast extending forward below ear-coverts and partly separating a blackish band on side of throat from black of side of head. **peregrinus** (p. 240)
  b^2. Light color of breast not invading the auricular region, the entire side of head, sides of throat, and ear-coverts being black.
    c^1. Bars on under parts black and close-set; flanks, thighs, abdomen, and under tail-coverts washed with smoky blue-gray........................ **ernesti** (p. 242)
    c^2. Less closely barred below; under parts not washed with smoky blue-gray. **melanogenys** (p. 241)
a^2. Much smaller; wing less than 250 mm.. **severus** (p. 243)

198. **FALCO PEREGRINUS** Tunstall.

PEREGRINE FALCON.

Falco peregrinus TUNSTALL, Ornithologia Britannica (1771), 1; SHARPE, Hand-List (1899), **1**, 273; BLANFORD, Fauna Brit. Ind. Bds. (1895), **3**, 415; OATES, Cat. Birds' Eggs (1902), **2**, 296; MCGREGOR and WORCESTER, Hand-List (1906), 44.
Falco communis SHARPE, Cat. Birds Brit. Mus. (1874), **1**, 376.

Batan (*Edmonds*); Calayan (*McGregor*); Camiguin N. (*McGregor*); Catanduanes (*Whitehead*); Fuga (*Whitehead*); Luzon (*Steere Exp.*, *McGregor*); Mindanao (*Steere Exp.*); Mindoro (*Everett*); Negros (*Steere Exp.*); Palawan (*Whitehead, Platen, White*). Northern America, Europe, Asia; in winter, Africa and Indian Peninsula.

"*Adult.*—Above bluish gray, darker on the head and nape, pale on rump and upper tail-coverts; feathers of the head and nape, the scapulars and sometimes other parts of the upper plumage dark shafted, and all feathers except those of the head and hind neck with dark cross-bands; forehead whitish; a broad cheek-stripe from beneath eye black; primaries blackish, the inner webs, except near the end, closely barred with white; secondaries ashy gray with darker cross-bands; tail dark gray or blackish, with numerous ashy gray cross-bars, closer together and paler toward the base, extreme tip and borders near tip whitish; lower parts white with a rufous tinge, a few brown or black spots on lower breast and middle of abdomen, and narrow dark bars on flanks, lower wing-coverts, thighs, and under tail-coverts.

"*Young birds* are very dark brown above, the feathers edged with rufous, the buff bases of the feathers showing about nape; tail-feathers with about six transversely oval rufous spots on each web, forming imperfect cross-bars; primaries as in adults; cheek-stripe narrower; lower parts white, buff, or rufescent, spotted except on the throat, with broad brown elongate median stripes, becoming broad spots on the flanks.

"After the first molt peregrines are brownish gray above and gradually acquire a pure slaty-gray back. The spots and bars on the lower parts are much broader at first and grow smaller and narrower with age, the drops on the breast become narrow lines and ultimately disappear altogether, the bands fade off the under tail-coverts and in very old birds only small scattered specks remain on the abdomen and triangular markings on the thigh-coverts. The general tint of the lower surface varies from almost white to light rufous.

"Bill bluish, black at tip; cere yellow: iris brown; legs and feet yellow. Length of a female, about 483; tail, 190; wing, 368; tarsus, 53; middle toe without claw, 57; bill from gape, 33. Males are considerably smaller, length, about 406; wing, 317." (*Blanford.*)

An old female, taken in Tarlac Province, Luzon, was 470 in length; wing, 360; tail, 195; culmen from base, 30; tarsus, 55; middle toe with claw, 68. Iris brown; cere, legs, and skin about eyes light lemon-yellow; nails black; bill black, its basal third very pale yellow.

199. **FALCO MELANOGENYS** Gould.

AUSTRALIAN FALCON.

Falco melanogenys GOULD, Proc. Zool. Soc. (1837), 139; SHARPE, Cat. Birds Brit. Mus. (1874), 1, 385; Hand-List (1899), 1, 274; OATES, Cat. Birds' Eggs (1902), 2, 298; MCGREGOR and WORCESTER, Hand-List (1906), 45.

Luzon (*Heriot*). Australia.

"*Adult male.*—Head and nape deep black, including the entire sides of face, cheeks, and ear-coverts; interscapulary region blackish, with a few obsolete transverse bars of bluish gray; rest of upper surface bluish ashy, barred all over with blackish, some of the bars, especially of the upper tail-coverts, assuming a triangular form; upper wing-coverts somewhat washed with brown, the gray shade being more perceptible on the greater series; quills black, the primaries outwardly shaded with gray, outer secondaries narrowly tipped with creamy white, the inner ones almost entirely bluish gray, with obscure blackish marblings and cross-bars; tail blackish, with a narrow ashy white bar at the tip, the upper surface shaded with gray, clearer toward the base, bars on center rectrices eleven in number, not including the broad subterminal black band; throat and upper breast deep creamy buff, the latter with a few median black shaft-stripes; rest of the under surface buffy white, closely but narrowly barred across with black, sides of body and thighs shaded with a bluish gray tinge; fore part of breast and under wing-coverts with a strong fawn-colored shade. Bill greenish at base, horny black at tip, under mandible deep orange; feet yellow; claws black; iris dark. Length, 376; culmen, 30; wing, 300; tail, 152; tarsus, 51.

"*Adult female.*—Similar to the male, but larger and more richly colored; underneath deep ferruginous, paler on the chest, the cross barring narrow and irregular, sometimes confined to a small subterminal spot. Length, 419; culmen, 37; wing, 338; tail, 168; tarsus, 51.

"*Young male.*—Above brownish, the feathers edged with fulvous, especially distinct on the wing-coverts and secondaries; hinder neck marked with pale tawny; lower back and rump alternately barred with ashy and dark brown, the subterminal bar being somewhat triangular in shape; tail brown, similarly barred with ashy and tipped with fulvous; quills dark brown, with paler edgings; under surface buffy white, inclining to deep fawn on the breast and abdomen, which are longitudinally streaked with blackish brown, the flanks, under wing-coverts, and axillars barred with the same color. Cere, bill, and feet paler than in the adults.

"*Young female.*—Brown, head and cheeks blackish; feathers of upper surface spotted and tipped with rufous-fawn; underneath deep buff, inclining to rufous on the abdomen, the streaks on the chest dart-shaped, on the abdomen oval, all very broad and distinct." (*Sharpe.*)

200. **FALCO ERNESTI** Sharpe.

ERNEST'S FALCON.

Falco ernesti SHARPE, Ibis (1894), 545; Hand-List (1899), **1**, 273; GRANT, Ibis (1895), 438; (1896), 530; MCGREGOR and WORCESTER, Hand-List (1906), 44.

Falco atriceps CLARKE, Ibis (1895), 476.

Luzon (*Heriot, Whitehead*); Negros (*Keay, Whitehead*); Sibuyan (*McGregor* *); Siquijor (*Celestino*). New Guinea; Greater Sunda and Fiji Islands.

Diagnosis.—Similar to *Falco melanogenys* but blacker; beneath everywhere shaded with ashy gray; wing-lining and axillars black, crossed with narrow white bars. Length, 394 mm.; wing, 295; tail, 140; tarsus, 48.†

"The adult male [collected by Hose at 1,400 meters on Mount Dulit, Borneo] is a remarkably beautiful specimen, and is evidently of the same race of peregrine as Mr. Pretyman's bird from the Lawas River, but is not quite so red on the chest. The closeness of the barring of the under wing-coverts and axillars is remarkable and gives the species a much blacker look than *F. melanogenys* while no specimen of the last name falcon in the [British] Museum has the under tail-coverts and thighs bluish gray like the sides of the body. Whether *Falco ernesti* (as I have named the bird, after Mr. Ernest Hose) is confined to Borneo I can not yet tell, but I think that it is very likely to be found to be the *resident* form of all the Indo-Malayan Islands, as a specimen procured by Mr. Maitland-Heriot in Manila seems certainly referable to it." (*Sharpe.*)

Grant says: "In adults of *F. ernesti,* though the breast is occasionally washed with fulvous, the sides, flanks, and belly are dark slate-gray or bluish gray, and the whole of the under surface below the crop is thickly covered with rather wide, close-set black bars, giving these parts a very dark appearance."

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* The Sibuyan specimen was recorded as *Falco peregrinus* in *Publ. Govt. Labs.* (1905), **25**, 11.

† Sharpe's diagnosis is as follows: "*F.* similis *F. melanogeni*, sed nigricantior, subtus ubique cinereo adumbratus, et subalaribus axillaribusque nigris, lineis parvulis albis transfasciatis. Long. tot. 15.5 poll., alæ 11.6, caudæ 5.5, tarsi 1.9."

201. **FALCO SEVERUS** Horsfield.

ASIATIC MERLIN.

Falco severus HORSFIELD, Trans. Linn. Soc. (1821), **13**, pt. 1, 135; SHARPE, Cat. Birds Brit. Mus. (1874), **1**, 397; Hand-List (1899), **1**, 274; McGREGOR and WORCESTER, Hand-List (1906), 45.

Calamianes (*Bourns & Worcester*); Cebu (*Bourns & Worcester*); Luzon (*Heriot, Whitehead, McGregor, Worcester*); Mindanao (*Everett, Goodfellow*); Mindoro (*Everett, Bourns & Worcester*); Negros (*Layard, Bourns & Worcester, Whitehead*); Palawan (*Whitehead, Platen, Steere Exp., Bourns & Worcester, White*); Romblon (*Bourns & Worcester*); Sibuyan (*Bourns & Worcester*); Siquijor (*Bourns & Worcester*); Sulu (*Platen, Bourns & Worcester*); Tawi Tawi (*Bourns & Worcester*). Malay Peninsula, Burmese provinces, Himalayas, Ceylon, southern Indian Peninsula, Greater Sunda Islands to New Guinea and New Britain.

"*Adult female.*—Above black, with a slight slaty gray shade, more distinct on the lower back, rump, and tail, the bars on the latter being obsolete; cheeks and ear-coverts entirely black, like head; under surface of body uniform bright chestnut; throat and sides of neck creamy white, the latter with a slight wash of chestnut; under wing-coverts chestnut like breast, some of the lower ones barred with black; primaries black, with a few rufous bars near the base. Cere, orbits, and feet yellow; bill bluish black, yellow at base; iris dark brown. Length, 343; culmen, 24; wing, 231; tail, 117; tarsus, 36.

"*Adult male.*—Similar to, but smaller than the female. Length, 297; wing, 216; tail, 114; tarsus, 29.

"*Young.*—Similar to the adult, but the breast covered with median tear-shaped black spots on each feather, the tail broadly banded and tipped with rufous, as also are the primaries; nape slightly varied with rufous; throat purer white than in adult." (*Sharpe.*)

"A very rapid flyer and usually seen on the wing. Much detested by Spaniards and natives on account of its depredations on their dovecotes and poultry yards." (*Bourns and Worcester MS.*)

Genus CERCHNEIS Boie, 1826.

Smaller than *Falco* but tail slightly graduated or wedge-shaped and actually longer than in the peregrines; wing pointed, first primary a trifle longer than fourth and decidedly shorter than third, the second longest; tarsus feathered for a short distance in front, the bare portions covered with hexagonal scales, large in front, small on lateral and posterior aspects.

202. CERCHNEIS TINNUNCULUS (Linnæus).

KESTREL.

Falco tinnunculus LINNÆUS, Syst. Nat. ed. 10 (1758), 1, 90.
Cerchneis tinnuncula SHARPE, Cat. Birds Brit. Mus. (1874), 1, 425.
Cerchneis tinnunculus SHARPE, Hand-List (1899), 1, 276; OATES, Cat. Birds' Eggs (1902), 2, 308; MCGREGOR and WORCESTER, Hand-List (1906), 45.

Luzon (*Whitehead*); Palawan (*White*). Europe and northern Asia; in winter, Africa and the Indian Peninsula.

"*Adult male.*—Upper parts brick-red, with a few arrow-head markings of black, larger on the inner secondaries; primary-coverts and quills dark brown, the former narrowly margined with rufous, the primaries notched with white for about two-thirds of their length, the inner primaries and outer secondaries narrowly edged and tipped with buffy white; head and neck clear blue-gray, with narrow black shaft-stripes; forehead and narrow eyebrow buffy white; cheeks silvery gray, inclining to blackish below the eye and on the fore part of cheeks, forming a tolerably distinct moustache; lower back, rump, upper tail-coverts, and tail clear blue-gray, the latter tipped with ashy white, before which is a broad subterminal band of black; throat and under tail-coverts buff, unspotted; remainder of under surface rufous-fawn; the chest-feathers mesially streaked with black, these dark centers being larger and more oval in shape on flank-feathers; thighs clear rufous unspotted; under wing-coverts white, spotted with black. Bill bluish horn-color, black at tip, yellowish at base; cere, orbits, and feet yellow; iris brown. Length, 317; culmen, 44; wing, 234; tail, 170; tarsus, 41.

"*Adult female.*—Similar to the male underneath but not so deeply colored. Upper surface entirely rufous, banded with black, with a faint bluish shade on the rump; upper tail-coverts inclining to buff; head rufous, streaked with black; tail rufous, banded with black, the bars not being strictly continuous, tipped with buffy white, before which is a conspicuous broad band of black; facial features and soft parts as in the male. Length, 317; culmen, 19; wing, 234; tail, 165; tarsus, 41.

"*Young male.*—Resembling the old female but rather paler and more distinctly striped on the breast. The tail first changes, becoming blue like that of the old male; and thus birds are often seen in partial plumage, having the blue tail of the adult male, but retaining the rufous head of the old female dress." (*Sharpe.*)

Suborder PANDIONES.

This suborder with a single family of two genera is distinguished from the suborder Accipitres by having the outer toe reversible; in addition to this the claws are very greatly curved and the under side of each claw is rounded instead of being grooved or concave as in the hawks and eagles.

Family **PANDIONIDÆ.**

Characters same as those given for the Suborder.

Genera.

a^1. Smaller; front of tarsus covered with small imbricated scales.. **Pandion** (p. 245)
a^2. Larger; part of tarsus covered with large transverse plates. **Polioaëtus** (p. 247)

Genus PANDION Savigny, 1809.

Bill slightly compressed; width of upper mandible at nostril more than its depth; primaries abruptly and deeply cut on inner web and exceeding secondaries by more than length of tarsus; back of tarsus covered with small scales like those in front.

Species.

a^1. Much larger; wing, about 500 mm.. **haliætus** (p. 245)
a^2. Much smaller; wing, 460 mm. or less.................................. **leucocephalus** (p. 246)

203. PANDION HALIÆTUS (Linnæus).

EUROPEAN OSPREY.

Falco haliætus LINNÆUS, Syst. Nat. ed. 10 (1758), 1, 91.
Pandion haliaëtus SHARPE, Cat. Birds Brit. Mus. (1874), 1, 449; OATES, Cat. Birds' Eggs (1902), 2, 315; MCGREGOR and WORCESTER, Hand-List (1906), 45.

Luzon (*Worcester, Whitehead*); Mindoro (*Everett, McGregor, Whitehead*); Palawan (*Whitehead*). Eastern hemisphere.

"*Adult.*—Above brown, most of the feathers with obsolete margins of paler brown, more distinct on the wing-coverts; primaries black, secondaries brown like the back, the primaries pale, but uniform whity brown below, the secondaries whitish on the inner web, with indistinct bars of ashy brown; tail almost uniform brown, tipped with whity brown, and shaded with ashy externally, the inner web obsoletely barred with ashy brown, a little more distinct below, where the interspaces are whitish; head brown, with white bases to the feathers; a broad white streak from behind the eye running down the sides of the neck; ear-coverts blackish brown; sides of neck unifrom with the back; sides of face and entire under parts white, the breast varied with brown centers to the feathers of more or less extent, the chin and fore part of cheeks also slightly streaked with dark brown; axillars and a few of the flank-feathers also marked with rufous-brown like the breast; under wing-coverts buffy white, with dark brown centers, the outermost almost entirely brown, with whitish tips. Cere blue; bill black; feet blue; iris yellow. Length, 610; culmen, 44; wing, 503; tail, 241; tarsus, 61.

"*Young.*—Glossy chocolate-brown, all the feathers terminally margined with buffy white, these margins somewhat tinged with rufous, and broadest on the secondary quills and upper tail-coverts; crown of head black, with white or fulvous margins to the feathers, giving a distinctly streaked appearance; nape white, not streaked; from behind the eye a broad line of white runs down the side of the neck, slightly streaked with black; below this another line of black feathers, including the ear-coverts, is conterminous; sides of face and entire under parts pure white, somewhat tinged here and there with yellowish buff; under wing-coverts white, the outer ones strongly washed with tawny-buff, and crossed with broad bars of dark brown; primaries black, secondaries chocolate-brown like the back, and tipped in the same manner, all of them whitish at base of inner web, indistinctly barred with pale brown; tail-feathers alternately barred with dark sepia-brown and ashy brown, tipped with whitish, and having whitish shafts; the bars six in number, and more distinct on the inner web, which is buffy white.

"*Nestling.*—Covered with down of a sooty-brown color, except along the center of the back, along the carpal bend of the wing, on the breast and flanks, where it is dusky white; all the feathers of the back are dark brown, with a broad tip of ochraceous-buff; crown and ear-coverts blackish; eyebrow and throat white.

"*Observation.*—Ospreys seem to get whiter on the head with age; but the mottling on the breast is at present unintelligible to me. It appears to be strongly marked in all old birds; but the brown centers to the feathers, which give the bird its mottled appearance, are never exactly similar, there being a continued alteration in the pattern of the feather itself. At the same time two young birds, distinguished by the fulvous margins to the upper surface, have not a similar amount of brown on the breast; for in one it is almost entirely absent, while the other has very few markings indeed. The tail becomes more uniform brown with age, so that a strongly barred tail is a sure sign of immaturity." (*Sharpe.*)

204. PANDION LEUCOCEPHALUS Gould.

AUSTRALIAN OSPREY.

Pandion leucocephalus GOULD, Syn. Birds Austr. (1838), pt. 3, pl. 6; SHARPE, Cat. Birds Brit. Mus. (1874), **1**, 451; Hand-List (1899), 1, 279; NORTH, Catal. Austral. Bds. ed. 2 (1898), pt. 1, 70; OATES, Cat. Birds' Eggs (1902), **2**, 317; MCGREGOR and WORCESTER, Hand-List (1906), 45.

Balabac (*Everett*); Luzon (*Worcester*); Marinduque (*Steere Exp.*); Palawan (*White*). Australia and Austro-Malayan Islands.

"Similar to *P. haliætus*, but very much smaller; cere bluish lead-color; bill black; feet pale bluish white; iris primrose-yellow in some, bright orange in others. Length, 508; wing, 414. A specimen killed by Mr. Wallace in New Guinea had the wing 432 long." (*Sharpe.*)

"*Adult.*—Upper surface of body, wings, and tail, glossy brown, the feathers mesially shaded with a darker tint, many of the feathers of the interscapular region, back, scapulars, and shoulders margined with white; primaries blackish brown, black at the tip past the notch, the inner web becoming white on the margin toward the base, some showing remains of brown bars; a few of the inner primaries, some of the adjacent secondaries and wing-coverts, narrowly margined with buffy white; under surface of the wings white, the outer series of the under coverts blotched with brown; feathers along the outer margin of the wing from elbow to base of primaries, dark brown margined with white, under surface of the secondaries and of the primaries past the notch ashy brown, the basal marginal portion of the inner webs white, barred down the center portion with brown; head, throat, and back of the neck white, a few feathers on the nape having a streak of blackish brown down the center; lores blackish lead-color; ear-coverts blackish brown, which color extends on to the sides of the neck, where the feathers are brown margined with white; chest, breast, and lower part of hind neck white, much mottled with brown on the tips of the feathers, and occasionally centered with a blackish stripe; the remainder of the under surface, thighs, and tail-coverts white; tail above brown, feathers narrowly margined at the tips with white, the inner webs of a lighter brown, all except the two center quills broadly margined and toothed with white toward the base; under surface of tail ashy white, tips of the feathers ashy margined with white. Bill black; legs and feet lead-blue; iris yellow. Length, 760; wing, 508; tail, 228; tarsus, 63; bill, 43;* from nostril, 30; culmen, 49.

"*Observation.*—In some specimens, apparently fully adult, the whole of breast, chest, and sides of the neck are strongly mottled with brown, and the feathers centered with a blackish stripe; the under wing-coverts are barred with brown; the scapulars, upper wing-coverts, and quills scarcely if at all margined with white; in others the whole of the head and neck, except the ear-coverts and sides of the neck immediately behind them, is white, without any brown markings, and the dull brown of the chest takes no definite form, but is for the most part darkest on the center of the feathers." (*North.*)

Genus POLIOAËTUS Kaup, 1847.

Bill decidedly compressed, width of upper mandible at nostril less than its depth; primaries obliquely and slightly cut on inner web and exceeding secondaries by less than tarsus; back of tarsus smooth with plate divisions obsolete.

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* "The length of the bill varies considerably, some specimens, measured from the anterior margin of the cere, being only 30, others 34."

205. POLIOAËTUS ICHTHYÆTUS (Horsfield).

GRAY-HEADED FISH EAGLE.

Falco ichthyætus Horsfield, Trans. Linn. Soc. (1821), **13,** pt. 1, 136.
Polioaetus ichthyaetus Sharpe, Cat. Birds Brit. Mus. (1874), **1,** 452.
Polioaëtus ichthyaëtus Sharpe, Hand-List (1899), **1,** 279; Oates, Cat. Birds' Eggs (1902), **2,** 217; McGregor and Worcester, Hand-List (1906), 45.

Basilan (*Bourns & Worcester*); Bongao (*Everett*); Calamianes (*Bourns & Worcester*); Luzon (*Whitehead*); Mindanao (*Steere Exp., Celestino*); Mindoro (*Bourns & Worcester, McGregor*); Negros (*Keay*); Samar (*Whitehead*). Malay and Indian Peninsulas, Burmese provinces, Greater Sunda Islands, Celebes, Ceylon.

"*Adult male.*—Above brown, paler on the interscapulary region and darker on the wings, primaries blackish; under surface of wing leaden brown, with a whitish spot at base of primaries; tail white, with a broad terminal bar of brown; entire head and neck all round clear ashy gray; breast brown, a little lighter than the back; belly, vent, thighs, lower flanks, and under tail-coverts pure white; under wing-coverts uniform ashy brown. Cere and bill blackish; feet dirty yellowish white; iris brown. Length, 660; culmen, 58; wing, 457; tail, 254; tarsus, 95.

"*Adult female.*—Similar to the male but larger. Length, 737; wing, 518; tarsus, 99.

"*Young.*—Above brown, glossed with chocolate, most of the feathers of the upper surface with paler brown margins; feathers of the head and hind neck mesially streaked with fulvous; sides of face a little paler than the head, but streaked in the same manner; under surface of body pale brown, inclining to rufous, and longitudinally streaked with whitish down the center; thighs white, much mottled with rufous-brown; lower abdomen, vent, and under tail-coverts pure white; under wing-coverts pale brown, plainly streaked with white, the greater series almost entirely white, with a few brown markings; quills brown, white at base of inner web, the white extending further on secondaries; which have ashy brown cross-bars; tail fulvous brown, mottled all over with dark brown, except at the tip, which is uniform dark brown, forming a very distinct band.

"The bird above described, though full grown, is evidently immature as regards its plumage. The second stage is very similar to the adult, but is by no means so gray on the head and throat." (*Sharpe.*)

"Less common than *Haliæetus leucogaster* but frequents the same localities. Quite abundant at Lake Naujan in Mindoro." (*Bourns and Worcester MS.*)

A few individuals were seen near the Baco River in Mindoro and Celestino took a pair of young birds in northern Mindanao.

Order STRIGIFORMES.

OWLS.

Head large and round; bill strongly hooked and with a cere which is more or less hidden by stiffish bristles; eyes large, directed forward, each surrounded by a more or less perfect ruff of modified, close-textured feathers; in most species a bunch of elongate erectile feathers above each eye forming the so-called horns or ear-tufts; feet strong, claws curved and sharp; outer toe reversible; plumage soft and fluffy; colors generally various shades of brown, gray, and rufous and in most species vermiculated and streaked, the plumage resembling that of the *Caprimulgidæ;* habits nocturnal, or crepuscular, and insectivorous; eggs white, nearly globular, usually deposited in a hole in a hollow branch or trunk of a tree, or in a deserted hawk's nest.

Families.

a^1. Claw of middle toe not pectinate; middle toe longer than inner toe. **Strigidæ** (p. 249)
a^2. Claw of middle toe pectinate on inner margin; inner and middle toes about equal in length .... **Aluconidæ** (p. 271)

Family STRIGIDÆ.

Characters same as those given in the key to Families.

Subfamilies.

a^1. Ear-conch not larger than eye and without an operculum; portion of facial disk below the eye greater than the area above the eye.... **Buboninæ** (p. 249)
a^2. Ear-conch much larger than eye and with a large operculum; facial disk distinct and extending as far above as below the eye.................. **Striginæ** (p. 270)

Subfamily BUBONINÆ.

Genera.

a^1. Toes without bristles.
  b^1. Larger; wing, 230 mm. or more, but relatively shorter, falling short of the end of tail .... **Pseudoptynx** (p. 249)
  b^2. Smaller; wing, 220 mm. or less, but relatively longer, when folded reaching nearly or quite to tip of tail........................ **Otus** (p. 252)
a^2. Toes scantily clothed with rather stiff bristles........................ **Ninox** (p. 260)

Genus PSEUDOPTYNX Kaup, 1848.

Large; ear-tufts moderate; primaries but little longer than secondaries; plumage full and streaked; legs closely feathered to the toes; toes naked.

Species.

a^1. Larger; wing, 330 to 380 mm.
  b^1. Smaller and lighter; wing, about 350 mm........................ **philippensis** (p. 250)
  b^2. Larger and darker; wing, about 375 mm........................ **mindanensis** (p. 251)
a^2. Smaller and darker; wing, about 235........................ **gurneyi** (p. 250)

206. **PSEUDOPTYNX PHILIPPENSIS** Kaup.

LUZON HORNED OWL.

Pseudoptynx philippensis KAUP, Cont. Orn. (1852), 117.
Bubo philippinensis SHARPE, Cat. Birds Brit. Mus. (1875), **2**, 43.
Pseudoptynx philippensis WALDEN, Trans. Zool. Soc. (1875), **9**, pt. 2, 144, pl. 25, fig. 2; SHARPE, Hand-List (1899), **1**, 284; MCGREGOR and WORCESTER, Hand-List (1906), 46.
Bubo philippensis GRANT, Ibis (1894), 503.

Luzon (*Cuming, Heriot, Möllendorff, Steere Exp., Whitehead, McGregor*).

"*Adult* (*type of species*).—Above tawny-rufous, the feathers mesially dark brown, giving a closely striped appearance; the wing-coverts rather darker, some of the scapulars and greater-coverts externally creamy buff, forming a kind of longitudinal bar down the latter; entire head and auricular-tufts colored like the back, but somewhat more narrowly streaked; quills dull brown, tipped with fulvous, more plainly on the secondaries, the primaries spotted on the outer and barred on the inner web with pale tawny-rufous, the bars more distinct on the secondaries; tail-feathers dull brown, tipped with fulvous and crossed with a few bars of tawny-buff, the middle feathers nearly uniform, with only one bar and indications of a second, the bars gradually increasing in number toward the outer tail-feather, which has five bars on the inner web, and is externally tawny-buff; lores white, the anterior bristles black toward tip; sides of face tawny, with white shafts; facial disk tawny, with central streaks of brown to the feathers, which are fulvous at base; under surface of body buffy white, longitudinally streaked with dark brown centers to the feathers, each mesial streak having a narrow edging of rufous on each side, and decreasing in width toward the abdomen and under tail-coverts, the tarsal feathers entirely uniform; under wing-coverts buffy white, the outermost longitudinally spotted with dark brown, the greater series whitish at base, brown at tip, resembling the inner lining of the wing. Bill horn-blue at base, yellow at tip; feet fleshy brown, claws light horn-color. Length, 546; auricular-tufts, 33; culmen, 58; wing, 356; tail, 178; tarsus, 68." (*Sharpe.*)

An adult male was taken near Irisan, Benguet Province, Luzon. Iris yellow; bill pale horn-blue, cere similar but darker; feet pale dingy blue; nails blackish. Length, 483; wing, 350; tail, 185; culmen from base, 47; tarsus, 77.

207. **PSEUDOPTYNX GURNEYI** Tweeddale.

GURNEY'S HORNED OWL.

Pseudoptynx gurneyi TWEEDDALE, Proc. Zool. Soc. (1878), 940, pl. 58; SHARPE, Hand-List (1899), **1**, 284; MCGREGOR and WORCESTER, Hand-List (1906), 46.

Mindanao (*Everett*).

Adult male.—"Sides of face bright pure unmarked rufous; lengthened stiff plumes springing from base of maxilla rufous, mixed with tawny, and many with dark brown shafts and tipped with dark brown; space above front of eyes, uniting on forehead and extending back over eyes, pale tawny-rufous; crown and occiput dark rufous, many of the feathers with a broad dark brown mesial stripe; nape and sides of neck pure rufous; lengthened ear-tufts rufous, some with very narrow brown mesial linear markings near their apices; plumes bordering facial disk albescent tawny, some almost pure white, tipped with dark brown; chin and upper throat tawny-rufous; middle of throat white; breast and remainder of lower surface pure rufous, more dilute on lengthened tibial plumes and under tail-coverts; a few pectoral plumes with large, dark brown, terminal drops; many abdominal plumes. with elongated dark brown, central stripes; back rufous, minutely freckled with brown, each feather with a bold, irregular, dark brown central stripe; scapulars like back, but some of the shorter and outer ones albescent tawny on outer webs; dark brown central marks so arranged that the back, together with the scapulars, appears to have three parallel dark brown stripes running down it; rump and upper tail-coverts rufous brown, with darker shafts; rectrices brown, minutely freckled with pale rufous, and with eight or nine rufous cross-bands; lesser and median wing-coverts brown, freckled with rufous, each with a narrow central brown line; greater coverts brown on inner web, freckled with rufous on outer web; quills brown, alternately banded with freckled brown and pale rufous; tertiaries pure rufous, with traces of dark brown along the shafts; edge of wing white; lining yellowish white; some of the under carpal coverts rufous; thigh and tarsal coverts pale rufous and tawny white. 'Iris warm brown; bill grayish white; feet pale gray; claws white tipped with dark gray.' (*Everett.*) Wing, 236; tarsus, 46; culmen without cere, 28; middle toe, 35." (*Tweeddale.*)

This species differs from *P. philippensis* in its smaller size, more rufous under surface, darker upper surface. and finer dark markings of the mantle.

208. **PSEUDOPTYNX MINDANENSIS** Grant.

MINDANAO HORNED OWL.

Pseudoptynx mindanensis GRANT. Bull. Brit. Orn. Club (1906), **16**, 99; Ibis (1906), 496.

Mindanao (*Goodfellow*).

Adult male.—"Nearly allied to *P. philippensis,* from which it differs in being somewhat larger and in the following points: General color of upper parts much darker, the feathers being brownish black, and rather narrowly margined with sandy rufous, instead of bright tawny-buff; primary quills dark brown, with only faint traces of buff markings; secondaries similar with faintly indicated grayish buff transverse markings;

tail-feathers brown, with whitish or whitish buff transverse markings, rather faintly indicated on outer webs; under parts more heavily streaked with blackish. 'Iris light brownish gold; bill whitish toward the tip, bluish gray at base; feet pale gray; nails white at base, gray at tip.' (*Goodfellow.*) Length, about 495; culmen, 51; wing, 371; tail, 185; tarsus, 76." (*Grant.*)

Genus OTUS Pennant, 1769.

Small; ear-tufts well developed; primaries not greatly exceeding secondaries; plumage buffy and mottled; tarsus more or less feathered; toes naked in Philippine species.

Species.

- a^1. Tarsus feathered nearly to the toes.
  - b^1. Plumage without many fine vermiculations.
    - c^1. Darker above.
      - d^1. Above very dark or deep rich brown.
        - e^1. Head and neck not heavily streaked with blackish brown.
          - f^1. Larger.
            - g^1. Wing of male about 165 mm .... **everetti** (p. 253)
            - g^2. Wing of male about 185 mm .... **whiteheadi** (p. 256)
          - f^2. Smaller .... **boholensis** (p. 260) / **fuliginosus** (p. 254)
        - e^2. Head and neck heavily streaked with blackish brown; wing, 160 mm. tail, 75 .... **romblonis** (p. 259)
    - c^2. Lighter above.
      - d^1. Above light rufous-fawn .... **megalotis** (p. 252)
      - d^2. Above bright tawny-rufous .... **rufescens** (p. 256)
  - b^2. Plumage with many fine vermiculations.
    - c^1. Smaller, wing about 150 mm .... **sibutuensis** (p. 254)
    - c^2. Larger, wing about 165 mm. or more.
      - d^1. Head and neck heavily streaked with blackish brown .... **cuyensis** (p. 257)
      - d^2. Head and neck finely mottled with blackish brown .... **calayensis** (p. 258)
- a^2. Tarsus feathered for proximal half only.
  - b^1. Larger; rictal bristles and ear-tufts longer .... **longicornis** (p. 255)
  - b^2. Smaller; rictal bristles and ear-tufts shorter .... **mindorensis** (p. 256)

209. **OTUS MEGALOTIS** (Gray).

CUMING'S SCREECH OWL.

Scops megalotis GRAY, Cat. Acciptr. Brit. Mus. (1844), 45; SHARPE, Cat. Birds Brit. Mus. (1875), **2**, 69; Hand-List (1899), **1**, 285.

Lempijius ? megalotis WALDEN, Trans. Zool. Soc. (1875), **9**, 145, pl. 25, fig. 3.

Otus megalotis MCGREGOR and WORCESTER, Hand-List (1906), 46.

Luzon (*Cuming*).

"*Adult* (*type of species*).—Everywhere light rufous-fawn, with separate vermiculations of dull blackish, a little coarser on the auricular-tufts and on the wing-coverts, almost obsolete on the under surface of body; tarsal feathers fulvous, slightly mottled with rufous; greater and primary wing-coverts rufous-fawn color, very coarsely and thickly vermiculated with blackish, forming five or six indistinct bars; quills blackish, with six or seven bars of fawn-color, very distinct on the outer primaries, but gradually becoming more and more obscured with blackish frecklings till the bands are obsolete on the secondaries; tail blackish, with six or seven bars of fawn-color, more or less obscured with frecklings of blackish, which are plentifully distributed over the whole tail; under wing-coverts uniform fulvous; the under surface of the wing ashy brown, with bands of fulvous. Bill pale horn-color, yellowish on under mandible; feet yellowish brown. Length, 279; culmen, 33; auricular tufts, 37; wing, 165; tail, 89; tarsus, 37." (*Sharpe.*)

The type, secured by Cuming in "Manila," is the only known specimen.

210. **OTUS EVERETTI** (Tweeddale).

EVERETT'S SCREECH OWL.

Scops everetti TWEEDDALE, Proc. Zool. Soc. (1878), 492; SHARPE, Hand-List (1899), 1, 287.

Otus everetti MCGREGOR and WORCESTER, Hand-List (1906), 46.

Basilan (*Everett*); Mindanao (*Everett*); Palawan (*Whitehead, Platen*); Samar (*Steere Exp.*).

Description.—"May be described as being a large form of *Scops* [=*Otus*] *lempiji* as it occurs in Java. Above it has the deep rich brown coloring of the Javan species: the same broad dark brown mark in the form of a parallelogram on the head and nape; the same pale colored forehead, stripe above each eye and round the nape, and the broad dark stripe leading from behind the eye, and including most of the ear-tufts; there are no pale uniform tawny or fulvous scapulars. Underneath, the markings differ from those of the Javan bird by being more confused, and by the absence of regular dark brown cross-markings on the abdominal plumes. The general coloring of the under surface is of a ruddier brown. Male: 'Iris deep brown; feet whitish.' (*Everett.*) Wing, 165; tail, 89; tarsus, 30; culmen, 16. Female: 'Iris warm brown; bill pale greenish leaden, nearly white; feet whitish gray; claws dark gray.' (*Everett.*) Wing, 171; tail, 92; tarsus, 30; culmen, 17." (*Tweeddale.*)

"A single male specimen, secured in Palawan, measured 203 in length; wing, 137; tail, 73; culmen, 15; tarsus, 29; middle toe and claw, 26. Bill pale horn, darkest at base; feet dirty white; nails black at tip, gray at base; food insects. This specimen started within a meter of the head of the collector, and flew less than three meters before alighting.

"If *S. everetti* is a smaller race of *S. lempiji* it is hard to understand the above measurements. We were at first inclined to identify our Palawan specimen with the latter species, but after comparison with Dr. Steere's specimen of *S. everetti* from Samar, find ourselves unable to do so." (*Bourns and Worcester MS.*)

211. OTUS FULIGINOSUS (Sharpe).

PALAWAN SCREECH OWL.

Scops fuliginosa SHARPE, Ibis (1888), 197; Hand-List (1899), **1**, 287.
Scops everetti WHITEHEAD. Ibis (1893), 44.
Otus fuliginosus McGREGOR and WORCESTER, Hand-List (1906), 46.

Palawan (*Whitehead*).

Diagnosis.—Similar to *Otus umbratilis* but much smaller, and entirely rich brown; vermiculated and spotted as in typical *Otus* but auricular region uniform rufous-brown; and with frontal and cervical bands pale and obsolete.*

Whitehead, who collected the type, refers this species to *Scops* (=*Otus*) *everetti* and says: "I find that Mr. Sharpe has not much faith in his *Scops fuliginosa,* which in all probability is only the young of *S. everetti.*" Sharpe retains the species in his "Hand-List" and therefore it is given here.

212. OTUS SIBUTUENSIS (Sharpe).

SIBUTU SCREECH OWL.

Scops sibutuensis SHARPE, Bull. Brit. Orn. Club (1893), **2**, 9; Ibis (1894), 244; Hand-List (1899), **1**, 287.
Otus sibutuensis McGREGOR and WORCESTER, Hand-List (1906), 46.

Sibutu (*Everett*).

Diagnosis.—Similar to *Otus mantananensis* but upper side of wings scarcely spotted with white and quills but faintly banded below. "Bill blackish brown; feet brown; iris yellow." (*Everett.*) Length, 203; wing, 152.†

Everett collected an adult male and female and a young bird in Sibutu. Sharpe makes the following observations: "This race is intermediate between *S. menadensis* [from Celebes] and *S. mantananensis* [from Mantanani Island, Borneo] which I described last year; the white wing markings, however, are altogether smaller and not so distinct, the under surface of the quills being almost devoid of markings. From *S. menadensis* the Sibutu bird differs in having all the markings of the upper surface very fine and not all over as in that species. The quills have also more bars in the Celebean bird than in the species from Sibutu."

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* Sharpe's diagnosis and remarks on this species are as follows: "S. similis *S. umbratili,* sed multo minor et omnino saturate brunnea, modo Scopino vermiculata et notata, sed regione auriculari rufo-brunnea concolore, et fasciis frontalibus et cervicalibus pallidis obsoletis.

"The above diagnosis well expresses the relations of this dark-colored *Scops* owl, which is more dingy in color than any species I know."

† Sharpe's diagnosis is as follows: "*S.* similis *S. mantananensis* sed alis extus vix albo notatis, et remigibus intus vix fasciatis distinguenda. Long. tot. 8.0 poll., alæ 6.0."

213. **OTUS LONGICORNIS** (Grant).

LONG-HORNED SCREECH OWL.

Scops longicornis GRANT, Bull. Brit. Orn. Club. (1894), 3, 51; Ibis (1894), 504; (1895), 439; SHARPE, Hand-List (1899), 1, 287; MCGREGOR, Bull. Philippine Mus. (1904), 3, 7.
Otus longicornis MCGREGOR and WORCESTER, Hand-List (1906), 46.

Bañg-aó, Benguet.
Luzon (*Whitehead, McGregor*).

Adult male.—Upper parts bright rufous, the feathers with streaks and irregular bars of blackish brown, mostly near their tips; forehead, line over each eye, and complete collar white, the feathers blackish at their tips; collar narrow but distinct on hind neck, wider on breast; loral plumes with white bars and black tips, the longest plumes about 28 mm.; ear-tufts colored like the head, longest feathers 31 mm.; ear-coverts barred with white, blackish brown, and rufous; chin whitish; throat and sides of throat white, each feather with a black tip and subterminal rufous line; breast rich rufous boldy mottled with black and less white; abdomen, flanks, and under tail-coverts largely white, the feathers mottled with blackish and rusty brown; thighs rufous; wings blackish, mottled and speckled with fulvous and rusty brown, tail similar. Bill dingy dull green, tip and cutting edge dark brown; cere dirty flesh at base but dull yellowish green over nostrils; legs whitish flesh; nails gray: iris bright yellow. Length, 184; wing, 145; tail, 72; culmen from base, 17; tarsus, 33.

Adult female.—Similar to the male. Length, 190; wing, 153; tail, 71; culmen from base, tip broken, 18; tarsus, 30.

Downy young.—The natal down is pure light gray; this soon gives place to a soft gray plumge barred with brown, darker on head and upper parts. A nest with three downy young was found in Benguet, Luzon, on May 26.

"A single male specimen of this remarkable little owl was obtained. It most nearly resembles *Scops pennatus*, but may be instantly recognized by having the basal half of the tarsi entirely devoid of feathers, as well as by the length of the horn-like feathers on the head, which measure 38 mm., whereas in *S. pennatus* the longest are only 23. The markings on the feathers of the head are coarse and form black bands, and the whole of the markings on the back and under parts are coarser and less neat. Length, 203; wing, 142; tail, 74; tarsus, 29; of which 15 is naked and covered with small octagonal scales." (*Grant.*)

The subject of Grant's remarks, quoted above, was a long-horned screech owl collected by Whitehead in "North Luzon." The same collector secured specimens in Lepanto and I have seen a living example which was reported as having come from Nueva Ecija.

214. **OTUS MINDORENSIS** (Whitehead).

MINDORO SCREECH OWL.

Scops sp. inc. GRANT, Ibis (1896), 462.
Scops mindorensis WHITEHEAD, Ibis (1899), 98.
Otus mindorensis MCGREGOR and WORCESTER, Hand-List (1906), 56.

Mindoro (*Whitehead*).

Adult female.—Similar to *Otus longicornis* but smaller; hair-like feathers on each side of mandible shorter, the longest less than 25 mm.; forehead and space above eyes almost uniform pale buff; ear-tufts shorter, the longest feather about 30 mm.; white nuchal band obsolete; lower parts mostly buffy, and almost entirely devoid of white. Length, 183; wing, 135; tail, 63; tarsus, 29. Male unkonwn. (*Whitehead.*)

This species is known from the type ony, a badly damaged skin obtained by Whitehead.

215. **OTUS WHITEHEADI** (Grant).

WHITEHEAD'S SCREECH OWL.

Scops whiteheadi GRANT, Bull. Brit. Orn. Club. (1895), 4, 40; Ibis (1895), 440; WHITEHEAD, Ibis (1899), 97; SHARPE, Hand-List (1899), 1, 287.
Otus whiteheadi MCGREGOR and WORCESTER, Hand-List (1906), 46.

Luzon (*Whitehead*).

Description.—"This remarkably fine new species is most nearly related to *Scops everetti* of Tweeddale, from the Island of Mindanao, but it is very much larger, and is, in fact, the largest *Scops* at present known to inhabit the Old World. The feathering on the tarsi extends over the basal joints of toes; the light cross-bars on the inner webs of the quills are much less conspicuous; and the middle of the lower breast and belly is uniform whitish buff, in marked contrast to the sides. Both the gray and rufous phases of plumage are represented. Adult male. Length, 241 to 254; wing, 185 to 188; tail, 91 to 94; tarsus, 42. Adult female. Length, 279 to 289; wing, 195 to 203; tail, 99 to 102; tarsus, 42 to 48." (*Grant.*)

"Iris golden brown; bill brownish white, tipped with white; feet dull white, nails white." (*Whitehead.*)

Known from Whitehead's specimens only, which were collected in Lepanto, northern Luzon.

216. **OTUS RUFESCENS** (Horsfield).

RUFOUS SCREECH OWL.

Strix rufescens HORSFIELD, Trans. Linn. Soc. (1821), 13, pt. 1. 140.
Scops rufescens SHARPE, Cat. Birds Brit. Mus. (1875), 2, 102; Proc. Zool. Soc. (1879), 314; Hand-List (1899), 1, 287.
Otus rufescens MCGREGOR and WORCESTER, Hand-List (1906). 46.

Sulu (*Burbidge*). Malay Peninsula, Greater Sunda Islands.

Adult.—"Everywhere bright tawny-rufous, browner on the head and upper parts generally, these also varied with small triangular cross-bars of fulvous, which become larger and more distinct on the wing-coverts; the outer margin of the scapulars paler and more inclining to tawny-fulvous; ear-coverts 25 mm. long, and colored like the head; lores and forehead clear fulvous, with little black spots along the shaft of the feathers; sides of face rufous; inclining to dark brown around the eye; behind the ear-coverts a line of black feathers running down the sides of the neck; under surface of body tawny-rufous, paler on the lower parts, and varied with little tiny spots of black along the shafts, less distinct toward the abdomen, and absent on thighs and under tail-coverts, which are uniform tawny-buff; quills dark brown, barred across with fulvous, paler on the outer margin of primaries, but less distinct on the secondaries, which are almost uniform rufous like the back, but with indistinct bars of dark brown on the inner web; tail rufous, mottled with dark brown vermiculations, making it look darker than the back, with remains of five or six, more or less plainly indicated, fulvous bars; under wing-coverts buffy white, more tawny on outer edge, and having a line of dark brown feathers near the outer margin. Length, 239; culmen, 229; wing, 132; tail, 66; tarsus, 27." (*Sharpe.*)

This species is included in the Philippine list because of the single specimen collected by Burbidge which, however, may really represent an undescribed species. Sharpe says: "This bird seems to me to differ slightly from Bornean and Malaccan examples in having a much darker face, the ear-coverts shaded with black. I do not, however, propose to found a new species on a single example, and must wait for more specimens. The measurements of the Sooloo [=Sulu] bird are as follows: Length, 178; culmen, 18; wing, 122; tail, 66; tarsus, 22."

217. **OTUS CUYENSIS** McGregor.

CUYO SCREECH OWL.

Otus cuyensis McGregor, Bull. Philippine Mus. (1904), 4, 17; McGregor and Worcester, Hand-List (1906), 46.

Bu-caó, Cuyo.
Cuyo (*McGregor*).

Adult male, light phase, type.—Feathers of head and neck heavily streaked with blackish brown, the edges more or less notched with whitish and light rufous; ear-tufts also blackish, but edges rufous; back dark rufous, finely speckled with blackish, clearer rufous on upper tail-coverts; each outer scapular with a large white spot on outer web followed by a blackish spot on tip and bordered toward base by a dark brown line; chin and upper throat whitish with narrow brown shaft-stripes, the webs marked more or less with cinnamon; remainder of under parts dark cinnamon, more or less cross-barred with white and dark brown, each feather with a blackish brown shaft-stripe; the coloration heaviest across upper breast because of the greater width of the shaft-stripes and reduction of the white areas; middle of abdomen almost pure white; flank-feathers with narrow shaft-lines and wide white bars; thighs rufous-brown; wings mostly sandy cinnamon more or less mottled with brown; outer webs of primaries regularly notched with five or six spots of white or whitish cinnamon, bordered with dark brown; similar notches on secondaries but less prominent owing to darker color of spots; quills below brownish with slightly lighter, irregular, and almost obsolete bars; alula with similar light notches on outer webs, on the first feather the notches are white; coverts generally uniform, but some feathers of median series with large white patches on outer webs; tail similar to the back with about eight irregular and nearly obsolete cross-bars; short plumulaceous feathers below and behind the eye finely mottled with pale cinnamon, brown, and whitish; behind ear, feathers of the incomplete ruff broadly tipped with blackish brown forming a prominent dark band on side of head; bristle-like feathers of lores with bases whitish, tips blackish brown, the longest about 20 mm.; anterior bristles pale cinnamon; tarsus feathered to base of toes. Bill, cere, and feet dirty brown; nails horn-brown; iris yellow. Length, 235; wing, 170; tail, 82; culmen, 23; tarsus, 35; middle toe with claw, 33.

Adult female, light phase.—Not greatly different from the male, but white notches on primaries and alula with a cinnamon wash. Length, 235; wing, 175; tail, 88; culmen (tip broken), 21; tarsus, 35; middle toe with claw, 32.

Red phase.—The pattern of coloration is the same as in the light phase; white and whitish markings nearly all replaced by rufous; chin and upper throat and modified feathers below and behind eye almost clear rufous; blackish brown markings on breast very wide; a few whitish bars on abdomen and flanks.

218. **OTUS CALAYENSIS** McGregor.

CALAYAN SCREECH OWL.

Otus calayensis McGregor, Bull. Philippine Mus. (1904), 4, 17; McGregor and Worcester, Hand-List (1906), 46.

Cok-cok bá-buy, Calayan.
Calayan (*McGregor*).

Adult male, light phase; type.—Lower parts dark cinnamon finely mottled with brown and white, a few feathers on throat and breast with dark brown shaft-stripes or spots; abdomen, flanks, and under tail-coverts extensively white with very little cinnamon and the brown mostly reduced to fine speckles; thighs and tarsi cinnamon with cross-lines of dark brown; upper parts dark rufous finely mottled with blackish brown, producing a rather uniform coloration; lores, continuous with a line above eyes, white; tips of nasal and loral bristles dusky brown or cinnamon, the longest about 20 mm.; modified feathers of ear-coverts and below eye finely speckled with white and dark brown; behind this the incomplete ruff forms a conspicuous rufous band along side of head, but most of the feathers tipped with dusky brown; feathers of ear-tufts dark rufous with irregular blackish spots toward tips; wing-coverts and scapulars about same as back, some of the latter with a large white area on outer web; exposed surface of quills and tail similar and a little lighter than back; tail crossed by several irregular lighter bars; quills dusky brown; outer webs of outer primaries notched with pale cinnamon; inner webs of quills crossed by pale cinnamon bars which become very wide on secondaries; tarsi feathered nearly to toes. Bill, feet, and nails brown, the feet with a slight green wash; iris bright yellow. Length, 216; wing, 169; tail, 85; culmen, 21; tarsus, 31; middle toe with claw, 29.

Female.—In every way similar to the male. Length, 203; wing, 164; tail, 81; culmen, 21; tarsus, 31; middle toe with claw, 28. In the red phase, the white markings, except a few bars and freckles on abdomen and flanks, are replaced by rufous.

219. OTUS ROMBLONIS McGregor.

ROMBLON SCREECH OWL.

Otus romblonis McGregor. Publ. Gov. Labs. Manila (1905), 25, 12; Phil. Jour. Sci. (1906), 1, 768; McGregor and Worcester, Hand-List (1906), 46.

Banton (*Celestino*); Romblon (*McGregor*).

Adult female, type.—Feathers of upper parts rufous with median black stripes on head, neck, and back, heaviest on head; ear-tufts colored like neck and inconspicuous; white spots on scapulars washed with pale fulvous; lower parts and wings patterned as in *O. cuyensis* but more rufescent; black band on side of head narrower and less marked than in *cuyensis*. Length, 222; wing, 158; tail, 76; tarsus, 29; middle toe with claw, 28.

This species is similar to *Otus cuyensis* from which it differs in having shorter wings and tail.

220. OTUS BOHOLENSIS McGregor.

BOHOL SCREECH OWL.

Otus boholensis McGregor, Phil. Jour. Sci. (1907), 2, sec. A, 323.

Bohol (*McGregor*).

Female, type.—Crown, nape, and interscapular area, conspicuously blackish, the feathers sparingly vermiculated and notched with sandy buff; basal portion of a few feathers sandy buff forming a narrow and hidden nuchal band; forehead whitish, the whitish marking continued as a wide band over each eye to tips of ear-tufts on inner webs, outer webs blackish spotted with fulvous, these white bands more or less broken by fine vermiculations of dark brown; loral plumes whitish with blackish tips; ear-coverts grayish, shaded wih fulvous and narrowly barred with dark brown, the hinder ear-coverts tipped with black forming a short band; side of neck whitish with fine blackish cross-lines and wide blackish tips to the feathers; behind ear-coverts an imperfect ruff of whitish feathers with wide terminal or subterminal black bars; chin whitish; feathers of throat somewhat modified in continuation of the ruff; breast, sides, and abdomen rufescent cinnamon with fine vermiculations and irregularly shaped median stripes of blackish brown, each feather with one or two rounded spots of light buff on each web; under tail-coverts light sandy buff with a few wavy blackish lines near their tips; legs sandy buff crossed by distinct wavy blackish lines; feathering of tarsi extending nearly to basal joints of toes; primaries dark brown; the outer webs with large clear and distinct spots of sandy buff, six in number on short first primary, and corresponding faint bars on inner webs; secondaries dark brown with sandy buff bars somewhat obscured by darker vermiculations; the primary-coverts resemble the secondaries, and first quill of alula is marked like the primaries; secondary-coverts, scapulars, and back vermiculated with sandy buff, light buff, and blackish brown and marked with large irregular blackish brown spots; under wing-coverts nearly white, inner ones uniform, the outer buff mottled with blackish; edge of wing white; tail dark brown, mottled with sandy buff and with seven or eight poorly defined bars of sandy buff. Wing, 155; tail, 82; tarsus, 30; culmen from base, 24; culmen from anterior margin of cere, 16; ear-tuft, 29.

This owl is clearly allied to *Strix lempiji* Horsfield, and doubtless it is closely related to *Scops everetti* Tweeddale, with which it should be compared. The type was taken in the interior of Bohol and is the only specimen known.

Genus NINOX Hodgson, 1837.

Usually larger than *Otus;* neither ruff nor ear-tufts present; tarsus more or less feathered; toes sparsely covered with stiff bristles; primaries much longer than secondaries.

Species.

- a^1. Breast streaked, each feather broadly centered with darker color.
  - b^1. Wing-coverts uniform with no rows of white spots.
    - c^1. Belly white, streaked or largely spotted with brown.
      - d^1. Head grayer, much lighter than back, which is browner; tail clear gray tipped with white, the black bands in strong contrast; axillars barred with brown and white; wing, 200 to 220 mm .... **lugubris** (p. 261)
      - d^2. Head browner, generally uniform with the back, seldom grayer; tail dark brown with blackish brown bars.
        - e^1. Smaller; wing, 197 to 210 mm .... **scutulata** (p. 262)
        - e^2. Larger; wing, 218 to 235 mm .... **japonica** (p. 263)
  - b^2. Wing-coverts spotted with white; outer edge of primaries with distinct rows of white spots.
    - c^1. Top of head uniform .... **philippensis** (p. 264)
    - c^2. Top of head more or less spotted.
      - d^1. Larger; wing, 195 mm .... **everetti** (p. 265)
      - d^2. Smaller; wing, 162 to 175 mm .... { **spilocephala** (p. 266), **reyi** (p. 267) }
- a^2. Breast spotted or transversely barred with fine lines.
  - b^1. Much larger; wing, about 240 mm .... **spilonota** (p. 266)
  - b^2. Much smaller; wing, 160 to 170 mm .... { **mindorensis** (p. 268), **plateni** (p. 268) }

221. NINOX LUGUBRIS (Tickell).

TICKELL'S HAWK OWL.

Strix lugubris TICKELL, Jour. As. Soc. Bengal (1831), **2**, 573.

Ninox lugubris SHARPE, Cat. Birds Brit. Mus. (1875), **2**, 154; Hand-List (1899), **1**, 290; OATES, Cat. Birds' Eggs (1902), **2**, 329; MCGREGOR and WORCESTER, Hand-List (1906), 47.

Basilan (*Steere Exp.*); Luzon (*Heriot, Steere Exp.*); Masbate (*Bourns & Worcester*); Mindanao (*Steere Exp.*); Negros (*Keay*); Sulu (*Bourns & Worcester*). Himalayas, Indian Peninsula, Burmese countries.

"*Adult female.*—Above ashy brown, the head very much grayer, the sides of the face and neck being decidedly light gray; forehead, lores, fore part of cheeks and chin very conspicuously white, the loral plumes with hair-like black shaft-lines; feathers round the eye grayish; scapulars marked externally with large bars of white, not very distinct, and often half concealed; upper wing-coverts ashy brown like the back, the outer median-coverts and the primary-coverts deeper and more inclining to sepia-brown; quills dark brown, a little deeper than the back, barred across with light ashy or grayish brown, inclining to whitish on the outer web of some of the primaries and inner secondaries, most of which are narrowly tipped with white; tail very pale grayish brown, inclining to white at the base, and also tipped with white, crossed with six blackish brown bands; under surface of body white, the throat yellowish buff, streaked longitudinally with grayish brown, the chest broadly streaked with rufescent brown, the abdomen spotted, and each feather subterminally barred with the same; under tail-coverts pure white, the basal ones with a few brownish bands; leg-feathers rufous-brown, very slightly mottled with whitish cross-markings; under wing-coverts white, barred across with dark brown, the outermost almost entirely brown, the edge of the wing white; the greater series dusky grayish brown, barred with buffy white, thus resembling the inner lining of the wing, which is grayish brown, barred with buffy white on the inner web, these bars inclining to fulvous near the base. Cere and bill green, the tip of the latter dusky; feet grayish or reddish yellow; iris bright golden yellow. Length, 343; wing, 232; tail, 145; tarsus, 34.

"*Adult male.*—Smaller than the female, and having only five blackish bands on the tail. Length, 292; wing, 216; tail, 142; tarsus, 29." (*Sharpe.*)

"The two specimens collected measure 294 in length; culmen, 15; wing, 222; tail, 123; middle toe with claw, 30; tarsus, 28. Iris yellow; legs and feet yellow; bill black along gape, elsewhere dirty greenish. Food insects." (*Bourns and Worcester MS.*)

222. **NINOX SCUTULATA** (Raffles).

RAFFLES'S HAWK OWL.

Strix scutulata RAFFLES, Trans. Linn. Soc. (1822), **13**, pt. 2, 280.
Ninox scutulata SHARPE, Cat. Birds Brit. Mus. (1875), **2**, 156 (part); Hand-List (1899), **1**, 290; OATES, Cat. Birds' Eggs (1902), **2**, 329; MCGREGOR and WORCESTER, Hand-List (1906), 47.

Palawan (*Platen*). Southern India, Malay Peninsula, Greater Sunda Islands, Ceylon, Tenasserim.

"*Adult* (type of *Athene malaccensis* *).—Above deep chocolate-brown, the head slightly darker, the scapulars with concealed white bars; wing-coverts exactly like the back and equally uniform, the primary-coverts blackish, quills dark brown, slightly washed externally with ocherous, the primaries inclining to rufous-ocherous toward their tips, all the wing-feathers nearly uniform, with no lighter cross-bands, the inner secondaries barred with white, but these bars entirely concealed; upper tail-coverts uniform chocolate-brown like the back; tail-feathers ashy brown, rather paler at tips, and crossed with five blackish bands (one basal and concealed); sides of face chocolate-brown, as also the sides of the neck, the latter slightly washed with rufous; forehead and lores whitish, the latter obscured by blackish shaft-lines; chin whitish, slightly streaked with brown; rest of under surface rufous-chocolate, the throat washed with buff, the breast varied with white, generally as if streaked, the margins to the feathers being whitish; on the abdomen the white predominating and cutting across the feather, so as to form an oval spot of brown at the tips of the abdominal plumes, leg-feathers brown; under tail-coverts whitish; under wing-coverts rufous-chocolate, the inner feathers washed and barred with ochraceous-buff, the edge of the wing whitish; the greater series sepia-brown, nearly uniform, excepting for a few ochraceous bars near the base, thus resembling the inner lining of the wing, which is sepia-brown, with a few ochraceous bars near the base of the quills. Length, 317; wing, 213; tail, 122; tarsus, 28." (*Sharpe.*)

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* "This bird is described as being most probably the same as the typical Sumatran *N. scutulata* (Raffl.)."

223. NINOX JAPONICA (Temminck and Schlegel).

JAPANESE HAWK OWL.

Strix hirsuta japonica TEMMINCK and SCHLEGEL, Fauna Japonica, Aves (1850), 29, pl. 9 B.

Ninox scutulata SHARPE, Cat. Birds Brit. Mus. (1875), **2**, 156 (part).

Ninox scutulata japonica MEYER and WIGLESWORTH, Bds. of Celebes (1898), **1**, 96.

Ninox japonica GRANT, Ibis (1896), 111; SHARPE, Hand-List (1899), **1**, 290; OATES, Cat. Birds' Eggs (1902), **2**, 330; MCGREGOR and WORCESTER, Hand-List (1906), 47; MCGREGOR, Phil. Jour. Sci. (1907), **2**, sec. A, 283.

Cuá-go, Manila; *cok-cok,* Calayan; *n̄gi-n̄gi-aó,* Cuyo.

Basilan (*Mearns, McGregor*); Calayan (*McGregor*); Camiguin N. (*McGregor*); Cebu (*Bourns & Worcester*); Cuyo (*McGregor*); Fuga (*Whitehead, McGregor*); Mindanao (*Everett, Celestino*); Mindoro (*Whitehead*). China. Japan, Indo Malayan islands; in winter to Celebes, Ternate, and Sangi Islands.

Adult.—"Above vandyke-brown, washed on the head with grayish, and with rufous on the back, sides of neck, throat, and wings; wing-coverts unspotted, the outer ones dark purplish brown, the inner ones like back, scapulars with concealed white spots; outer web of primaries light cinnamon-rufous with two or three partially obliterated yellowish bars; tail reddish brown crossed with five dusky bars and terminally margined with buff; under parts white with long oval light chestnut-brown spots; under side of wing banded on the inner webs of the feathers with yellowish isabelline except on the ends of the primaries. 'Iris golden yellow; bill dark lead-gray; feet light yellow.' (*Platen*). Wing, 218 to 235; tail, 115 to 136; tarsus, 25 to 29; culmen from cere, 13 to 17." (*Meyer and Wiglesworth.*)

"A male of the Japanese hawk owl was obtained on the Island of Fuga. It differs from the typical *N. japonica* from Japan and the Loo Choo Islands in having the predominating color of the under parts white instead of reddish brown, all the feathers being white, with an oblong reddish brown spot, about 15 mm. long, at the end of each. Examples from Luzon and Mindanao, however, approach the Fuga Island bird, having less reddish brown and more white on the under parts.

"*N. japonica* appears to be perfectly distinct from the Indian *N. scutulata,* the markings on the sides and flanks in the latter species taking the form of wide bars with a detached heart-shaped spot or bar at the tip of each feather. The sides and flanks thus appear spotted, not longitudinally streaked, as in *N. japonica*." (*Grant.*)

The Japanese hawk owl is a common species. In Calayan Island I killed a number of specimens on the beach and in both Fuga and Camiguin I found it common in the forest. The number of bars on the wings and tail is by no means invariable and must not be depended upon in identifying this species.

224. **NINOX PHILIPPENSIS** Bonaparte.

PHILIPPINE HAWK OWL.

Ninox philippensis Bonaparte, Compt. Rend. (1855), **41**, 654; Walden, Trans. Zool. Soc. (1875), **9**, 144, pl. 25, fig. 1; Sharpe, Cat. Birds Brit. Mus. (1875), **2**, 167; Hand-List (1899), **1**, 290; Grant, Ibis (1896), 531; McGregor and Worcester, Hand-List (1906), 47.

Bu-eaó, Ticao and Masbate.

Guimaras (*Steere Exp.*); Leyte (*Whitehead*); Luzon (*Meyer, Heriot, Steere Exp., Whitehead, McGregor*); Marinduque (*Steere Exp.*); Masbate (*Bourns & Woecester, McGregor*); Negros (*Steere Exp., Whitehead*); Siquijor (*Steere Exp., Bourns & Worcester, Celestino*); Ticao (*McGregor*).

"*Adult.*—Above brown, the head slightly darker and more chocolate-brown, the scapulars with large oval marks on the outer webs, some of the inner ones barred with ochraceous; wing-coverts dark brown, slightly washed with ochraceous, all of them distinctly spotted with white or ochraceous white, those on the median and greater series large and oval in shape; quills brown, margined narrowly with ochraceous, and barred across with paler brown, almost obsolete on the inner web, but indicated on the outer one by a distinct white spot, very plain, and producing a checkered appearance; upper tail-coverts rather more ochraceous brown that the back; tail-feathers sepia-brown, crossed with six narrow bands of pale ochraceous, the last one subterminal; frontal plumes whitish at base, but this color not visible; sides of the face brown like the head, the ear-coverts rather more dusky; under surface of body ochraceous brown, the chin whitish, and the throat marked with a few blackish streaks; the abdomen whiter, the centers to the feathers being ochraceous-brown, producing a broadly streaked appearance; under tail-coverts white; leg-feathers ochraceous-brown; under wing-coverts ochraceous, the edge of the wing white, those coverts nearest the margin being marked with dark brown; the lowest series sepia-brown, barred with pale ocher on the inner web, thus resembling the inner lining of the quills. Length, 216; wing, 176; tail, 102; tarsus, 51.

"*Young.*—Above rufous-chocolate, the upper surface almost entirely uniform, with the exception of a few buffy white bars on the outer scapulars; wing-coverts uniform like the back, and only a little darker, the greater series distinctly spotted on the outer web with ochraceous or white; primary-coverts uniform dark brown; quills dark brown, notched on the outer web with ochraceous or buffy white; tail darker brown than the back, with a fulvous tip and crossed with six narrow bars of fulvous-brown; forehead whitish, with long hair-like black bristles over the lores; side of face uniform rufous-chocolate like the head; under surface of body fawn-color, the feathers of the chest margined narrowly with whitish, causing a slightly streaked appearance, the abdominal plumes white, with broad fawn-colored centers, causing this part to appear very broadly streaked; thighs fawn-color; under tail-coverts white; under wing-coverts fawn-color excepting the lower series, which are brown, spotted with fulvous on the inner web, exactly resembling the inner lining of the quills. Length, 203; wing, 164; tail, 86; tarsus, 30." (*Sharpe.*)

"Five specimens average, 206 in length; wing, 177; tail, 89; tarsus, 28; middle toe with claw, 35; culmen, 14. Iris yellow; legs and feet light yellow; bill yellow at tip, greenish at base. Food insects." (*Bourns and Worcester MS.*)

"Mr. Whitehead's Negros collection contains three adult examples of a little hawk owl, and I am in considerable doubt as to whether this form should not be separated from typical examples of *N. philippensis* from Luzon. I have before me at the present time nine examples from Luzon, two from Guimaras, four from Negros, and one from Siquijor. All seven birds from the last three mentioned islands differ very considerably from Luzon specimens. The latter have the chest and breast mostly tawny brown, shading into pale tawny toward the edges of the feathers, and the belly and flanks whitish, with rather ill-defined brownish red middles. In Negros birds, as well as those from the other central islands already mentioned, the feathers of the breast and chest are chocolate-brown edged with white, and the rest of the under parts are white, with fairly wide and clearly defined shaft-stripes of a dark brownish red color.

"The general impression conveyed is, that the Luzon birds have the under parts tawny brown, suffused with white on the belly and flanks, while in birds from the central islands, the chest and breast, as well as the rest of the under parts, are white, clearly striped with reddish brown. These birds remind one of small examples of *Ninox japonica*, though of course the latter has the stripes on the underparts of a much darker color. It is quite possible that it may be found necessary to separate the birds from Negros, etc., under some distinctive name, but before doing this I should like to have more material from the adjacent islands." (*Grant.*)

225. **NINOX EVERETTI** Sharpe.

EVERETT'S HAWK OWL.

Ninox everetti SHARPE, Bull. Brit. Orn. Club. (1897), **6**, 47; Ibis (1897), 449; Hand-List (1899), **1**, 290; MCGREGOR and WORCESTER, Hand-List (1906), 47.

Siasi (*Everett*).

Diagnosis.—Similar to *Ninox reyi* but pale spots of primaries few, fulvescent, very slightly spotted with white; and abdomen, flanks, and thighs ocherous-fulvous, not white spotted with brown. Length, 241; wing, 195.*

This is a little-known species of which more specimens should be examined and compared with Rey's hawk owl.

226. **NINOX SPILOCEPHALA** Tweeddale.

TWEEDDALE'S HAWK OWL.

Ninox spilocephala Tweeddale, Proc. Zool. Soc. (1878), 940; Sharpe, Hand-List (1899), 1, 290; McGregor and Worcester, Hand-List (1906), 47.

Basilan (*Everett, Steere Exp., Bourns & Worcester, McGregor*); Mindanao (*Everett, Steere Exp., Bourns & Worcester, Celestino*).

Adult.—Very similar to *Ninox philippensis* from which it differs in having the head and neck spotted with rufous or tawny brown and the white spots on primary- and secondary-coverts larger; decomposed feathers below eye unusually long and entirely covering the true ear-coverts. A male from Basilan is 230 in length; wing, 177; tail, 83; culmen from base, 22; tarsus, 26. Female, length, 230; wing, 158; tail, 82; culmen from base, 21; tarsus, 28.

"Very common in the islands where it occurs. Hides among thick vines or bushes during the day. Feeds on beetles, grasshoppers, and the like. Iris yellow; legs and feet dirty, light yellow; bill pale greenish horn-color. Ten specimens average, 214 in length; wing, 162; tail, 76; culmen, 15; tarsus, 28; middle toe with claw, 22." (*Bourns and Worcester MS.*)

227. **NINOX SPILONOTA** Bourns and Worcester.

SPOTTED HAWK OWL.

Ninox spilonotus Bourns and Worcester, Minnesota Acad. Nat. Sci. Occ. Papers (1894), 1, 8.

Ninox spilonota Sharpe, Hand-List (1899), 1, 290; McGregor and Worcester, Hand-List (1906), 47.

Cebu (*Bourns & Worcester, McGregor*); Mindoro (*Platen, Everett, Bourns & Worcester*); Sibuyan (*Bourns & Worcester, McGregor*); Tablas (*Bourns & Worcester*).

"*Sexes alike.*—General color of upper surface fulvous-brown; feathers of head, nape, interscapulars, and wing-coverts spotted with light rufous-brown giving the parts in question a decidedly speckled appearance; rump fulvous-brown, upper tail-coverts faintly spotted with pale rufous-brown; tail nearly black with nine narrow transverse bands of light rufous-brown;

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* Sharpe's diagnosis of this species follows: "Similis *N. reyi*, sed maculis pallidis primariorum paucis fulvescentibus, minime albo quadratim notatis, et abdomine, hypochondriis, et tibiis ochrascentifulvis, nec albis brunneo maculatis distinguenda. Long. tot. 9.5 poll. alæ 7.7."

quills like tail but spotted, instead of barred, with light rufous-brown; scapulars like back, some of them with large nearly white spots on outer webs; a few of greater series of wing-coverts also spotted with white on outer webs; chin and throat whitish, almost pure white in one specimen, in others light rufous-brown, the feathers always with black shaft-stripes; auriculars fulvous-brown somewhat mixed with light rufous-brown; sides of neck like head; breast, abdomen, flanks, thighs, under wing-coverts, and axillars rufous-brown, the depth of the color subject to great individual variation, many feathers of breast and abdomen with fulvous-brown spots and all with blackish bases; under surface of wing fulvous-brown. Inner webs of feathers, especially of secondaries, spotted and barred with light rufous-brown; a spot of white on bend of wing; tarsus feathered for rather more than half its length. Iris yellow; legs and feet pale yellow; bill black at tip, gray at base. Two females measure, 241 in length; culmen, 13; tarsus, 31; wing, 181; tail, 102.

"A single specimen of this species was secured in Cebu by Mr. Worcester in 1888. Its curious mottled back and under surface were suggestive of immaturity, and Dr. Steere thought it to be the young of some undescribed species. We have altogether too much material now to make such a theory tenable." (*Bourns and Worcester.*)

A rusty brown male was taken in Sibuyan. Iris yellow; bill and legs pale dirty greenish; cere a little darker; nails gray, blackish at tips. Length, 285; wing, 210; tail, 114; culmen from base, 23; tarsus, 32.

A male from Cebu is in the light phase. Chin, throat, and forehead mostly white; rictal bristles with white bases; scapulars spotted with white; abdomen and flanks very largely white and with no fulvous nor rusty brown wash.

228. **NINOX REYI** Oustalet.

REY'S HAWK OWL.

Ninox reyi OUSTALET, Bull. Assoc. Sc. France (1880), No. 39, 206; SHARPE, Ibis (1894), 245; Hand-List (1899), 1, 291; MCGREGOR and WORCESTER, Hand-List (1906), 47.

Bongao (*Everett*); Sulu (*Montano & Rey, Marche*).

Diagnosis.—Distinguished at once from the common species (*Ninox philippensis*) by its greater length (290 mm.), by its much longer wings passing even the tip of the tail, and finally by its reddish brown plumage and transverse brown bars on head and on shoulders.*

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* "Quant a la Chouette qui provient du meme [Sulu] archipel, on peut la distinguer immediatemen de l'espèce commune des Philippines (*Ninox philippensis*) par sa taille plus forte (o m. 29), par ses ailes beaucoup plus longues et depassant même l'extrémité de la queue, et enfin par son plumage roux, rayé transversalement de brun sur la tete et sur les épaules. Par ce dernier caractère, la chouette des îles Sooloo, que pourra être appelée *Ninox Reyi*, ressemble en peu au *Glaucidium* ou *Athene cuculoides* de l'Indo-Chine, espèce dont les ailes sont, du reste, beaucoup moins developpées." (*Oustalet.*)

"A female from Bongao. 'Iris light yellow; bill greenish plumbeous; feet greenish yellow.' The specimen now sent appears to be not quite adult, but it shows the distinctness of the species from *Ninox philippensis* in the barred upper surface. The upper breast is barred with white and dark brown, and the flanks are white, with longitudinal pear-shaped mesial streaks of pale rufous-brown. The tail has likewise ten dark bands, much narrower than in *N. philippensis*, which has six broad bands of dark brown." (*Sharpe.*)

229. NINOX MINDORENSIS Grant.

MINDORO HAWK OWL.

Ninox mindorensis GRANT, Ibis (1896), 463; SHARPE, Hand-List (1899), **1**, 291; MCGREGOR, Bull. Philippine Mus. (1904), **4**, 17; MCGREGOR and WORCESTER, Hand-List (1906), 47.

Mindoro (*Whitehead, McGregor, Porter*).

Adult.—In color and color pattern very similar to *Ninox spilonota* but very much smaller; it also resembles *N. spilocephala* in size and pattern of upper parts but differs from the latter in having the breast and abdomen cross-barred instead of boldly striped. Both rufous and light phases occur in this species.

Male.—Iris yellow; bill, cere, and legs greenish; nails dark brown. Length, 225; wing, 167; tail, 88; culmen from base, 20; tarsus, 30.

Female.—Length, 220; wing, 158; tail, 78; culmen from base, 20; tarsus, 23.

"An adult female of this little Mindoro hawk owl was obtained in the lowlands, and is nearly allied to *N. spilocephala* Tweeddale, from Mindanao and Basilan, resembling that species in having the top of the head and nape barred with buff. It may, however, be at once recognized by having the whole of the under parts, including the belly and flanks, tawny-buff, traversely barred with brown, while in the female of *N. spilocephala,* though the breast is generally like that of the present species, the belly and flanks are always white, with longitudinal reddish brown shaft-stripes. Length, 203; wing, 152; tail, 76; tarsus, 28.

"I have of course carefully compared this species with Bourns and Worcester's description of *N. spilonotus,* specimens of which were obtained in Mindoro, but the much smaller size of this bird serves to at once distinguish it." (*Grant.*)

230. NINOX PLATENI Blasius.

PLATEN'S HAWK OWL.

Ninox plateni BLASIUS (in litt), HARTLAUB, Abh. Nat. Ver. Bremen (1899), **16**, 271; MCGREGOR and WORCESTER, Hand-List (1906), 47.

Mindoro (*Platen*).

Adult female.—Above reddish brown, slightly shaded with olive; top and sides of head, hind neck, sides of neck, and mantle lighter, pale reddish, and narrowly banded; on lower back and rump the bands inconspicuous so that these parts appear nearly uniform; chin light; throat-feathers light fawn-color with dark shaft-stripes, ground color of chest and belly bright red-brown, with narrow blackish stripes; bend of wing white; scapulars and greater wing-coverts with some larger opaque white spots on outer webs; primaries with inner webs uniform black, outer webs with broad dark brown and smaller pale reddish band spots; on the tertials appear very inconspicuous, broad, darker bands, and on the whole length of the edges of the outer webs, pale fawn spots; tail-feathers with darker brownish bands of equal width; under tail-coverts light fawn; inner wing-coverts light reddish brown with darker spots. Legs light yellowish; iris yellow. Length, 250; wing, 169; tail, 80.

Male.—Differs only in the following that the bands on the lower belly and thighs are on a lighter background; and the reddish brown ground-color of chest and epigastrium is somewhat lighter. Wing, 168; tail, 80.

Another female.—The brownish red of abdomen very fiery with irregular and less distinct bands. Wing, 168 mm.; tail, 78.*

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* The descriptions given above are from a copy of the original, the essential part of which follows:

"Ich beschreibe ein altes vollausgafärbtes Weibchen dieser Eule wie folgt: Oberher rötlichbraun, schwach ins Olive spielend. Oberkopf, Kopfseiten, Hinterhals, Halsseiten und Mantel heller fahlrötlich schmal gebändert; auf Unterrücken and Bürzel wird diese Bindenzeichnung undeutlich, so dass diese Teile nahezu einfärbig erscheinen. Kinn hell. Kehlfedern hellfahl mit dunklen Schaftstrichen. Brust und Bauch auf lebhaft rotbraunem Grunde schmal schwärzlich gebändert. Flügelbug weiss. Skapularen und grosse Flügeldeckfedern mit einigen grösseren mattweissen Flecken auf der Aussenfahne. Schwingen erster Ordnung: Innenfahne einfärbig schwärzlich, Aussenfahne mit breiteren dunkelbraunen und schmaleren rötlichfahlen Bindenflecken. Auf den Tertiärschwingen erscheinen sehr undeutlich breite, dunklere Binden und längs des Randes der Aussenfahne hellfahle Fleckenspuren. Schwanzfedern mit gleichbreiten bräunlichen und dunkleren Binden. Untere Schwanzdecken hellfahl. Innere Flügeldecken hellbraunrötlich mit dunklerer Fleckung. Beine hellgelblich. Iris gelb. Ganze Länge circa 250 mm, Flügel 169 mm, Schwanz 80 mm.

"Ein zweites Exemplar gez. ♂ unterscheidet sich nur dadurch, dass die Binden des Unterbauchs und der Hosen auf hellerem Grunde stehen. Auch auf Brust und Epigastrium ist die rotbraune Grundfarbe etwas heller. Flügel 168 mm. Schwanz 80 mm.

"Ein drittes Exemplar gez. ♀. Das Braunrot des Abdomen sehr feurig mit unregelmässiger und weniger deutlicher Bindenzeichnung. Flügel 168 mm, Schwanz 78 mm.

"Ein viertes Exemplar. Nestjunges Weibchen. Oberher olivenbräunlich. Nur auf dem Scheitel Bindenzeichnung. Unterher rotbräunlich mit Spuren von Binden auf der Brust. Die Federn des Bauches zeigen dunkle Schaftstriche. Untere Schwanzdecken hellfuchsrötlich. Die dunklen Flecken auf den Aussenfahnen der grösseren Schwingen stehen auf hellfahlem Grunde.

"Vergleicht man die vorstehende Beschreibung von Ninox Plateni Blas. mit

I doubt very much if this species is really distinct from *Ninox mindorensis;* the size is nearly the same and specimens of the two do not seem to have been actually compared.

Subfamily STRIGINÆ.

Genus STRIX Linnæus, 1758.*

Large; without ear-tufts; secondaries nearly as long as primaries; plumage compact; barred below, spotted above; legs and toes closely feathered.

231. STRIX WHITEHEADI (Sharpe).

PALAWAN BARRED OWL.

Syrnium whiteheadi Sharpe, Ibis (1888), 196, pl. 3; Hand-List (1899), 1, 294; McGregor and Worcester, Hand-List (1906), 47.

Palawan (*Whitehead, Platen, Bourns & Worcester, Celestino*).

"*Adult male.*—General color above chocolate-brown, spotted with white, the spots arranged in pairs, the one on the inner web often fulvescent: scapulars forming a light patch of tawny-buff, covered with narrow bars of chocolate-brown; lesser wing-coverts dark chocolate-brown, with scarcely any white spots; median and greater coverts more reddish chocolate-brown, transversely barred with white, slightly tinged with tawny-buff; alula and primary-coverts uniform blackish brown; quills brown, crossed with lighter and more rufous-brown bars, whiter near the edge, especially of the secondaries, which are slightly freckled externally; the innermost secondaries spotted with white, like the back; upper tail-coverts like the back, but barred with tawny-buff or whitish; tail-feathers dark chocolate-brown, barred with tawny-buff or creamy white, with which the tail is conspicuously tipped, the light bars, seven in number, on the center feathers, broader and coalescing on the remainder; crown of head like the back, thickly spotted with white, the spots arranged in pairs; feathers of the hind neck with concealed bases of tawny-buff; the mantle somewhat more uniform brown; sides of face chestnut, deeper about the eyes and on the ear-coverts, which are whiter posteriorly; ruff dark chocolate-brown, barred across with rufous; chin rufous, followed by a broad white patch, narrowly barred with black; remainder of under surface of body

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den Beschreibungen von Ninox spilonotus und Ninox mindorensis so ist das Ergebniss ein unsicheres, wenig befriedigendes. Der Umstand, dass in der Beschreibung von Ninox spilonotus nur von Flecken und an keiner Stelle von Bindenzeichnung die Rede ist, sowie, dass die Innenfahnen der grösseren Schwingen als 'spotted and barred with light rufous brown' beschrieben werden, genügt vollkommen, um jeden Gedanken an Gleichartigkeit von N. Plateni und N. spilonotus auszuschliessen."

* Cf. Auk (1908), 25, 371.

tawny-rufous, narrowly barred across with blackish brown including the thighs and under tail-coverts; fore neck with broad bands of white and chocolate-brown; under wing-coverts and axillars like the breast; quills below dusky brown, barred with yellowish buff, these bars broader toward the base of the inner web. Length, 444; wing, 330; tail, 190; culmen, 34; tarsus, 58.

"Of this fine owl Mr. Whitehead obtained several specimens. Its nearest ally is *Syrnium sinense*, but it is easily distinguished from that species by its rufescent under surface, with the absence of white bars." (*Sharpe.*)

Female.—In colors similar to the male, but size slightly greater. "Iris brown; eyelids dark carmine; bill and nails black." (*Celestino.*) Length, 460; wing, 340; tail, 200; culmen from base, 39; tarsus, 50.

"We heard a large owl, in all probability of this species, hooting at night in the Calamianes Islands; a single specimen was secured in Palawan: it measured, 432 in length; wing, 202; tail, 186; culmen, 26; tarsus, 61; middle toe with claw, 48." (*Bourns and Worcester MS.*)

Family **ALUCONIDÆ**.

Middle toe pectinate; ruff around eyes and across throat fully developed; primaries much longer than secondaries; proximal half of tarsus fully feathered, distal half covered with much shorter, more hair-like plumes; toes sparsely covered with hairs; plumage very soft and fluffy.

Genus ALUCO Fleming, 1822.

Characters same as those given for the Family.

232. **ALUCO LONGIMEMBRIS** (Jerdon).

GRASS OWL.

Strix longimembris Jerdon, Madras Jour. (1839), **10**, 86.

Strix candida (not of Latham, 1801) Tickell, Jour. As. Soc. Bengal (1833), **2**, 572; Sharpe, Cat. Birds Brit. Mus. (1875), **2**, 308; Hand-List (1899), **1**, 302; Oates, Cat. Birds' Eggs (1902), **2**, 342; McGregor and Worcester, Hand-List (1906), 48.

Aluco longimembris McGregor, Phil. Jour. Sci. (1908), **3**, sec. A, 283.

Cua-gong ta-lá-hib, Manila.

Batan (*McGregor, Edmonds*); Calamianes (*Bourns & Worcester*); Cebu (*Everett*); Luzon (*Heriot, Steere Exp., Whitehead, Worcester, McGregor*); Mindanao (*Mearns*); Siquijor (*Steere Exp.*). Indian Peninsula, Burmese provinces, northern Australia, Fiji, Formosa, Celebes.

Adult male (*Benguet, Luzon, May 10, 1903*).—Feathers of upper parts dark brown, the bases and edges, more or less, yellowish buff, this color forming a collar on hind neck; many of the feathers of back and wing-coverts each with a small white spot near the tip; a blackish spot in front of each eye; face white slightly tinged with buff; stiff ruff-feathers white, the outer ones with black shafts and blackish brown tips; sides of neck light tawny-buff with large brown spots; under parts white with a few small black spots on breast and flanks; breast faintly washed with buff; wing-lining and axillars white with larger black spots; primaries and secondaries, above light buff, with dark brown bars and whitish tips, below white, the tips of primaries dark brown; primary-coverts orange-buff basally; rectrices white with four blackish brown bars, the bars obsolete on outermost pair. Bill white, legs dirty brown; nails brown. Length, 395; wing, 355; tail, 135; bill from anterior border of nostril, 19; tarsus, 85; middle toe with claw, 55.

Female (*Batan Island, June, 1907*).—Similar to the male from Benguet but darker; under parts heavily washed with ocherous-buff; face washed with vinaceous-brown; the blackish spots of under parts more numerous. Length, 406; wing, 368; tail, 130.

The difference in color between the male and female, as described above, is not due to either age or sex and occurs in many, if not in all, of the members of this genus.

Nestling (*Laguna Province, Luzon, February 15, 1906*).—Wings and tail, as far as developed, like those of the adult; body and legs thickly covered with yellowish buff down.

Order **PSITTACIFORMES.**

COCKATOOS AND PARROTS.

Bill short, extremely strong; upper mandible movable, cered and strongly hooked as in the birds of prey; toes four, the outer toe permanently reversed; tarsus short and stout, covered with small scales. Eggs pure white, seldom with any gloss; oval, or rarely spheroidal; deposited in hollow trees.

Families.

a^1. Hook of bill underneath nearly smooth or with very superficial longitudinal ridges, but with no distinct file-like surface.......... **Loriidæ** (p. 272)

a^2. Hook of bill underneath with a series of transverse ridges more or less bent along the median line and producing a file-like surface.

  b^1. Head crested; plumage nearly all white.......... **Cacatuidæ** (p. 273)

  b^2. Head without crest; plumage nearly all green, or green and blue, never white. **Psittacidæ** (p. 275)

Family **LORIIDÆ.**

"Bill much compressed, generally longer than deep, not notched, and smooth; culmen rounded and narrow; lower mandible rather long, with the gonys narrow, straight, and obliquely slanting upward, not flattened in front and with no keel-like ridge; upper mandible with no file-like surface on the under surface of the hook; tongue brushy; cere broader over the culmen and gradually becoming narrower along the sides of the bill; * * * wing acute, with the three first quills generally the longest." (*Salvadori.*) In the single Philippine species the forehead is "dark rosy red."

Genus TRICHOGLOSSUS Vigors and Horsfield, 1826.

Characters same as those given for the Family.

233. **TRICHOGLOSSUS JOHNSTONIÆ** Hartert.

MRS. JOHNSTONE'S LORIKEET.

Trichoglossus johnstoniæ HARTERT, Bull. Brit. Orn. Club (1903), 14, 10; Novit. Zool. (1906), 13, 755; MCGREGOR and WORCESTER, Hand-List (1906), 48; GRANT, Ibis (1906), 495; GOODFELLOW, Avicult. Mag. (1906), 4, 83 (plate).

Mindanao (*Goodfellow, Waterstradt*).

Adult.—"Forehead dark rosy red, in the male obscured by greenish tips to the feathers; narrow loral line and broad line from the eyes backward meeting (in the female indistinctly) on the nape, dark brownish purple (not quite as dark as 'prune-purple', Ridgway's Nomenclature of Colors, pl. 8, fig. 1); rest of crown and whole upper surface grass-green, the inner webs of remiges and first primary on both webs black, all, with the exception of the first three, with a large sulphur-yellow patch in the middle of inner webs; feathers round the mandible to ear-coverts dark rose-red, those toward the ear-coverts, with yellowish-green tips; feathers of under surface dull sulphur-yellow, with gray bases and broad green tips; lower abdomen and under tail-coverts more greenish yellow, the green tips less distinct; under wing-coverts yellowish green, those near edge of wing dark green and some of the longest ones pale yellow; tail from below greenish brownish-yellow. Wing, 106 to 108; tail, 71 to 74; bill from cere to tip, ♂, 14.5; ♀, 12; metatarsus about 13. 'Bill yellowish red.'" (*Hartert.*)

Known only from specimens collected on Mount Apo, Mindanao.

Family **CACATUIDÆ.**

Bill very strong; edge of upper mandible strongly sinuate; lower mandible with the lower face wide and slightly rounded; a large unfeathered space about the eye; head crested; tail moderate and square; plumage nearly all white in the single Philippine species.

Subfamily CACATUINÆ.

Genus CACATUA Viellot, 1817.

Characters same as those given for the Family.

234. **CACATUA HÆMATUROPYGIA** (P. L. S. Müller).

PHILIPPINE COCKATOO.

Psittacus hæmaturopygius P. L. S. MÜLLER, Natursyst. Suppl. (1776), 77.
Cacatua hæmaturopygia SALVADORI, Cat. Birds Brit. Mus. (1891), **20**, 130; SHARPE, Hand-List (1900), **2**, 11; MCGREGOR and WORCESTER, Hand-List (1906), 48.

Ca-ta-la, Manila; *a-bú-cay*, Ticao and Bohol; *ca-lung'-ai*, Lubang.

Balabac (*Steere*, *Everett*); Bantayan (*McGregor*); Basilan (*Steere Exp.*, *Bourns & Worcester*, *Doherty*, *McGregor*); Bohol (*McGregor*); Bongao (*Everett*); Calamianes (*Bourns & Worcester*); Cebu (*Everett*, *Steere Exp.*, *Bourns & Worcester*); Guimaras (*Meyer*, *Steere Exp.*, *Bourns & Worcester*); Lapac (*Guillemard*); Leyte (*Everett*, *Steere Exp.*); Lubang (*McGregor*); Luzon (*Meyer*, *Bourns & Worcester*, *Whitehead*, *McGregor*); Marinduque (*Steere Exp.*); Masbate (*Steere Exp.*, *McGregor*); Mindanao (*Everett*, *Steere Exp.*, *Bourns & Worcester*, *Koch & Schadenberg*, *Goodfellow*, *Celestino*); Mindoro (*Steere Exp.*, *Schmacker*, *Whitehead*, *Bourns & Worcester*, *McGregor*); Negros (*Meyer*, *Everett*, *Bourns & Worcester*, *Keay*, *Whitehead*); Nipa (*Everett*); Palawan (*Steere*, *Lempriere*, *Whitehead*, *Platen*, *Steere Exp.*, *Bourns & Worcester*, *White*); Panaon (*Everett*); Panay (*Bourns & Worcester*); Samar (*Steere Exp.*, *Whitehead*); Siquijor (*Bourns & Worcester*, *Celestino*); Sulu (*Burbidge*); Tablas (*Bourns & Worcester*); Tawi Tawi (*Everett*, *Bourns & Worcester*); Ticao (*McGregor*).

Adult (*sexes alike*).—White: under tail-coverts vermilion edged with white; inner webs of remiges and rectrices sulphur-yellow much deeper on the latter and in some specimens tinged with red; sexes similar. Length, 300 to 350; three specimens measure, wing, 210 to 218; tail, 112 to 117; culmen from cere, 25 to 27; tarsus, 19 to 20. Iris bright red; naked skin around eyes, pale pink; bill dirty white; legs and nails bluish.

The ear-coverts are usually tinged with vermilion and the bases of crest-feathers are suffused with sulphur-yellow but both of these characters are variable. Bourns and Worcester killed two specimens in Panay in which "the plumage showed a peculiar faint pinkish tinge."

The "catala" is usually met with in small flocks either in forest or fields; its presence is proclaimed by the conspicuous white plumage and harsh note. In the island of Ticao we observed this species nesting in holes in dead trees but we secured only young birds; these resembled the adult. Bourns and Worcester took nestlings in Masbate in May, 1888.

"Iris of females usually blood-red, sometimes brown. We are inclined to think red the normal color in fully adult females. Iris in males very dark brown to black; bare skin around the eye creamy white; bill drab, with white tip. Three females measure, 315 in length; wing, 206; tail, 110; culmen, 25; tarsus, 18; middle toe and claw, 38." (*Bourns and Worcester MS.*)

Family **PSITTACIDÆ.**

Bill with a series of transverse ridges under the hook; head uncrested; colors green and blue, or green, blue, and red; never white.

Subfamily PALÆORNITHINÆ.

Genera.

a^1. Larger; length, more than 250 mm.; wing, more than 125 mm.
  b^1. Smaller; wing, about 150 mm.; middle pair of rectrices elongated and racket-tipped .... **Prioniturus** (p. 275)
  b^2. Larger; wing, about 200 mm.; rectrices graduate.......... **Tanygnathus** (p. 281)
a^2. Smaller; length, less than 190 mm.; wing, less than 115 mm.
  b^1. Larger; bill heavier; culmen exceeding width of bill but little. **Bolbopsittacus** (p. 284)
  b^2. Smaller; bill more slender; culmen twice the width of bill. **Loriculus** (p. 286)

Genus PRIONITURUS Wagler, 1832.

Length, 280 to 300 mm.; bill moderate, edge of upper mandible nicked; tail moderate, rectrices equal, except middle pair which are nearly twice as long as the others and racket-tipped; colors blue, green, and greenish yellow; in two species the male has a red crown-patch. Rectrices below verditer-blue; inner web of remiges below with a wide edge of verditer-blue; first primary above edged with blue on outer web. The key is based on male birds. The name parrakeet (the same as parrokeet, parakeet, paroquet, etc.) is applied to any of the smaller parrots, more particularly to those that have long tails.

Species.

a^1. Wing, 160 to 173 mm.
  b^1. A bright red patch on vertex.
    c^1. "Hind neck yellowish green".......... **verticalis** (p. 276)
    c^2. Hind neck grass-green.......... **montanus** (p. 276)
  b^2. No red patch on vertex.
    c^1. Rump green like the back.
      d^1. Forehead green .... **discurus** (p. 277)
      d^2. Forehead and crown blue.......... **suluensis** (p. 277)
    c^2. "Rump light greenish brown".......... **waterstradti** (p. 279)
a^2. Wing, 142 to 155 mm.
  b^1. Upper parts not uniform in color.
    c^1. Top of head violet-blue.......... **mindorensis** (p. 279)
    c^2. Top of head verditer-blue; throat and breast blue.......... **cyaneiceps** (p. 280)
  b^2. Upper and under parts nearly uniform; general color more yellowish. **luconensis** (p. 280)

235. **PRIONITURUS VERTICALIS** Sharpe.

EVERETT'S RACKET-TAILED PARRAKEET.

Prioniturus verticalis SHARPE, Bull. Brit. Orn. Club (1893), **3**, 10; Ibis (1894), 248, pl. 6; Hand-List (1900), **2**, 29; MCGREGOR and WORCESTER, Hand-List (1906), 48.

Bongao (*Everett*); Sibutu (*Everett*); Tawi Tawi (*Everett, Bourns & Worcester*).

Male.—Crown light blue with a small scarlet patch in the center; forehead, nape, and sides of head grass-green; neck and sides of neck yellowish green; remainder of upper parts, including exposed edges of wing- and tail-feathers, dark grass-green; lower parts greenish yellow, breast clearer yellow, abdomen, flanks, and crissum more greenish. A male from Tawi Tawi measures: Wing, 180; tail with rackets, 150; culmen from front margin of cere, 21.

Female.—"Differs from the male in being emerald-green all over, and wanting the verditer-blue on the head as well as the scarlet spot on the latter." (*Sharpe.*)

"Discovered by us in October, 1891; it is the finest of the Philippines representatives of the genus. Found in deep forest, but especially abundant in the high mangrove trees south of Tataan. The amount of red on its head is exaggerated in the plate in The Ibis, and it is too light in color.

"Eight males from Tawi Tawi measure, 268 in length; wing, 171; tail, exclusive of racket, 90; culmen, 22; tarsus, 15; middle toe with claw, 29. Four females measure, length, 255; wing, 165; tail, 96; culmen, 21; tarsus, 16; middle toe with claw, 28. Iris varies from pale yellow to hazel; legs and feet gray; nails gray to black; bill gray to white." (*Bourns and Worcester MS.*)

236. **PRIONITURUS MONTANUS** Grant.

MOUNTAIN RACKET-TAILED PARRAKEET.

Prioniturus montanus GRANT, Bull. Brit. Orn. Club (1895), **4**, 41; Ibis (1895), 466; WHITEHEAD, Ibis (1899), 397; SHARPE, Hand-List (1900), **2**, 29; MCGREGOR and WORCESTER, Hand-List (1906), 48.

U-lis', Benguet.

Luzon (*Whitehead, Worcester, McGregor, Mearns.*)

Male.—Forehead, lores, and face blue, bases of the feathers largely green; a large red spot on vertex, surrounded by blue; hind head, neck, and sides of neck grass-green; mantle, back, and rump duller and more yellowish green; wings, upper tail-coverts, and middle pair of rectrices grass-green; lower parts green, slightly yellowish. Iris gray; bill, legs, and nails light horn-blue. Whitehead gives the iris as "dark brown." Length, including rackets, 305 to 317; two males measure, wing, 164 to 166; tail, without rackets, 84 to 85; culmen from cere, 20 to 21; tarsus, 15 to 16.

Female.—Much like male but red and blue of head and face replaced by dark green; a slight trace of blue on forehead and around eyes. Colors of soft parts as in the male. "Differs from the female of *P. verticalis* in having the head dull grass-green, the forehead, lores, sides of the crown, and feathers round the eyes being washed with blue. The under parts are like those of the male and never yellow-green as in the Sibutu female." (*Grant.*) One female measures, wing, 158; tail without rackets, 83; culmen from cere, 20; tarsus, 17.

Young.—Immature birds of each sex resemble the adult female.

The mountain racket-tailed parrakeet was discovered by Whitehead in the mountains of Abra and Lepanto Provinces. At San Jose a live bird was purchased. The natives said it "had been snared in their maize-fields and that it was common enough when the cereal was ripe." We collected a number of specimens in Benguet Province where it was not uncommon though somewhat difficult to secure; the species is well known to the Igorot by the name "u-lis." It is improbable that this beautiful parrot occurs below the pine belt but with our meager knowledge of the vertical distribution of birds in the Philippines it is better to follow this statement with a large interrogation mark. This species is very noisy and does not differ in habits from lowland members of the genus.

237. **PRIONITURUS DISCURUS** (Vieillot).

PHILIPPINE RACKET-TAILED PARRAKEET.

Psittacus discurus VIELLOT, Gal. des Ois. (previous to 1823), **1**, 7, pl. 26.

Prioniturus discurus SALVADORI, Cat. Birds Brit. Mus. (1891), **20**, 417; SHARPE, Hand-List (1900), **2**, 29, MCGREGOR and WORCESTER, Hand-List (1906), 49.

Prioniturus discurus suluënsis BLASIUS, Jour. für Orn. (1890), 140.[*]

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[*] The validity of the following species is doubtful:

Prioniturus suluensis W. BLASIUS; SHARPE, Hand-List (1900), **2**, 29.

Prioniturus discurus var. *suluënsis* BLASIUS, Jour. für Ornith. (1890), 140.

Prioniturus suluensis SALVADORI, Cat. Birds Brit. Mus. (1891), **20**, 419.

Adult.—"Very much like *P. discurus*, from which it differs in being larger and in the greater extension of the blue color on the crown, where it begins from the anterior edge of the forehead and extends to the occiput; also lores bluish green; on the nape and upper part of the back there is a very distinct olive patch, of the same color as the under parts. Length, 343; wing, 163; central tail-feathers, 165; lateral tail-feathers, 76; bill, 23; tarsus, 17." (*Salvadori.*)

"The Sulu bird (*P. suluensis* Blasius) has been separated on account of its

Pa-lé-ta, Manila; *ma-ná-guin*, Ticao; *ca-gak'*, Bohol.

Basilan (*Steere, Steere Exp., Bourns & Worcester, Doherty, McGregor*); Bohol (*McGregor*); Catanduanes (*Whitehead*); Cebu (*Everett, Bourns & Worcester, McGregor*); Guimaras (*Meyer, Steere Exp., Bourns & Worcester*); Leyte (*Steere Exp., Whitehead*); Luzon (*Meyer, Everett, Steere Exp., Whitehead*); Masbate (*Steere Exp., Bourns & Worcester, McGregor*); Mindanao (*Cuming, Murray, Everett, Steere Exp., Bourns & Worcester, Celestino, Goodfellow*); Negros (*Steere Exp., Whitehead, Keay*); Samar (*Steere Exp., Whitehead*); Sibuyan (*Bourns & Worcester, McGregor*); Sulu (*Burbidge, Platen, Bourns & Worcester*); Tablas (*Bourns & Worcester*).

Adult.—General color green, vertex verditer-blue changing with the light; rest of head, neck, and face bright grass-green; rest of upper parts and wings dark green; below uniform yellowish green; spatules black, sometimes tinged with green or with blue; short rectrices blue along shaft, bordered with green and tipped with black. Sexes alike. Iris dark; cere very dark blue; bill light horn-blue; feet and nails darker blue. Length, including rackets, 292 to 317; four specimens from Ticao measure, wing, 160 to 169; tail without rackets, 76 to 85; culmen from cere, 21 to 23; tarsus, 15 to 17.

"A common and widely spread species. *P. discurus*, as well as the other five Philippine representatives of the genus, is usually met with in the forest or in fruit trees in the open, where it has gone to feed. At certain seasons it frequents the mangrove swamps. All the Philippine species are birds of very rapid flight, and scream almost constantly when on the wing. They usually fly in small flocks. In the forest they make the most of their protective coloring, and one may pass within ten feet of one without seeing it.

"Measurements are given exclusive of rackets. Four males from Basilan measure, 232 in length; wing, 149; tail, 66; culmen, 21; tarsus, 14; middle toe with claw, 28.

"Sibuyan birds are slightly larger, and have a light yellowish green area on back, but we do not feel warranted in separating them. Three females from Sibuyan measure, 257 in length; wing, 161; tail, 134; culmen, 22; tarsus, 16; middle toe with claw, 29. Iris brown; legs and feet leaden; nails blackish; bill grayish white." (*Bourns and Worcester MS.*)

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larger size and the blue on the crown being more extended, beginning at the anterior edge of the forehead and extending to the occiput. Its larger size (wing 165 mm.) one can appreciate, but the supposed difference in the blue on the crown and other minor characters mentioned are equally found in birds from Basilan, Mindanao, etc., so that *P. suluensis* can only be considered a rather larger insular race of *P. discurus*, which it absolutely resembles in plumage." *Grant*, Ibis (1895), 263.

The blue on the crown and forehead seems to be a variable quantity in *Prioniturus discurus* and its allies and the status of *suluensis* and *waterstradti* can only be determined when good series from various localities are studied.

238. **PRIONITURUS WATERSTRADTI** Rothschild.

WATERSTRADT'S RACKET-TAILED PARRAKEET.

Prioniturus waterstradti ROTHSCHILD, Bull. Brit. Orn. Club (1904), **14**, 72; HARTERT, Novit. Zool. (1906), **13**, 756; GRANT, Ibis (1906), 495; MCGREGOR and WORCESTER, Hand-List (1906), 49.

Mindanao (*Waterstradt, Goodfellow*).

Male.—"Forehead to the eyes pale blue, the feathers being green at base; lores and sides of face greenish blue; sinciput and nape grass-green; scapulars and back green with a slight brownish tinge: rump light greenish brown; wings outwardly bright green, inner webs of remiges, blackish from above, pale bluish from below; upper wing-coverts grass-green, slightly tinged with blue near bend of wing; rectrices, bright green from above, bluish from below, tipped with dull black for about 12 to 14 mm., the central pair quite green except the shaft and spatules, which are dull black; entire under side uniform yellowish green. Bill (in skin) whitish with leaden-gray base; feet dark gray. Wing, 152 to 157; tail, about 66, with lengthened central pair, 120 to 140; culmen from cere, 22; metatarsus, 15. One specimen marked '♀' is similar to the male." (*Rothschild.*)

This species is known from specimens collected by Waterstradt on Mount Apo at 900 meters elevation, and by Goodfellow at 2,500 meters.

239. **PRIONITURUS MINDORENSIS** Steere.

MINDORO RACKET-TAILED PARRAKEET.

Prioniturus mindorensis STEERE, List Birds and Mams. Steere Exped. (1890), 6; SALVADORI, Cat. Birds Brit. Mus. (1891), **20**, 419; SHARPE, Hand-List (1900), **2**, 29; MCGREGOR and WORCESTER, Hand-List (1906), 49.

Mindoro (*Steere Exp., Schmacker, Everett, Bourns & Worcester, Whitehead, McGregor, Porter*).

Male.—Most nearly related to *P. discurus* but distinguished by the crown patch which in *mindorensis* is blue with a slight violet tinge and is sharply defined in front against the green forehead; the bill is larger and the rackets are never so long as in adult specimens of *discurus*. Length, including rackets, 317; wing, 165; tail without rackets, 90; culmen from front margin of cere, 22.

Female.—Similar to female of *discurus* but often with traces of the violet crown patch. Length, including rackets, 300; wing, 160; tail without rackets, 90; culmen from front margin of cere, 21.

"Three males average, 268 in length, exclusive of rackets; wing, 162; tail, 135; culmen, 20; tarsus, 21; middle toe with claw, 28. A female measures, 261 in length; wing, 154; tail, 118; culmen, 21; tarsus, 15; middle toe with claw, 27. Iris light straw-yellow, nearly white; legs, feet, and nails light leaden; bill pale horn-color." (*Bourns and Worcester MS.*)

240. **PRIONITURUS CYANEICEPS** Sharpe.

BLUE RACKET-TAILED PARRAKEET.

Prioniturus cyaneiceps SHARPE, Ibis (1888), 194; Hand-List (1900), 2, 29; SALVADORI, Cat. Birds Brit. Mus. (1891), 20, 419; MCGREGOR and WORCESTER, Hand-List (1906), 49.

Balabac (*Steere, Everett*); Calamianes (*Bourns & Worcester, McGregor*); Palawan (*Whitehead, Platen, Steere Exp., Bourns & Worcester, Celestino, White*).

Male.—All of head, neck, and under parts bright verditer-blue, a little duller below where the feathers are yellowish at base, this when specimen is held toward the light, away from the light the blue parts become light bluish green; under tail-coverts bright greenish yellow and tipped with green; wings, back, and rump grass-green; tail-spatules black, touched with green; short rectrices green, deep blue along the shaft, tip black. Bill bluish white; legs blackish. A male from Palawan measures: Wing, 150; tail without rackets, 77; culmen from front margin of cere, 19.

Female.—Differs from the male in having the blue restricted to top and sides of head and in having the lower parts uniform light green with traces of blue; under tail-coverts deeper yellow than in the male.

Young.—"Green, with no verditer-blue shade on the head and neck; greater wing-coverts and secondaries edged with yellowish green; under parts yellowish green; under tail-coverts yellow, washed with greenish; middle tail-feathers longer than the lateral ones, narrow towards the point and entirely webbed." (*Salvadori.*)

"Ten males from Busuanga measure, 238 in length (exclusive of rackets, which may attain a length of 60 to 75); wing, 154; tail, 77; culmen, 19; tarsus, 14; middle toe with claw, 26. Seven females average, 233 in length; wing, 150; tail, 76; culmen, 19; tarsus, 15; middle toe with claw, 26." (*Bourns and Worcester MS.*)

241. **PRIONITURUS LUCONENSIS** Steere.

LUZON RACKET-TAILED PARRAKEET.

Prioniturus luconensis STEERE, List Birds and Mams. Steere Exped. (1890), 6; SALVADORI, Cat. Birds Brit. Mus. (1891), 20, 420; MCGREGOR and WORCESTER, Hand-List (1906), 49.

Prioniturus luzonensis SHARPE, Hand-List (1900), 2, 29.

Luzon (*Steere Exp., Whitehead, McGregor*); Marinduque (*Steere Exp.*).

Male.—General color bright yellow-green, very slightly darker on back and rump; alula, primaries, and coverts dark green; short rectrices green above, with wide dark tips; spatules black and dark blue. Iris dark brown; bill and feet light blue; nails horn-blue. Sexes alike? Length, with rackets, about 305; two males from Mariveles, Bataan Province, measure, wing, 140 to 143; tail without rackets, 67 to 73; culmen from cere, 17 to 18; tarsus, 13 to 14.

"*Immature.*—Differs from the adult in having the middle tail-feathers with the shaft not naked and with no developed spatula, although the webs become narrower before the end; the tips of the two middle tail-feathers are blue; the lateral tail-feathers have, towards the end, less blue than in the adult bird." (*Salvadori.*)

"We found this beautiful species common about the foot of Monte Arayat, in central Luzon, though we failed to meet with it in Albay or Catanduanes. In north Luzon it was abundant in the maize fields, feeding on the flower at the top of the plant. Young were obtained in the month of May in Isabella." *Whitehead,* Ibis, (1899), 397.

Genus TANYGNATHUS Wagler, 1832.

Bill very heavy and strongly curved; edge of mandible but slightly nicked; tail long; rectrices graduated, about 25 mm. difference between longest feathers and shortest; colors green and yellowish green; wing-coverts variegated; length, 300 mm.

Species.

a^1. Top of head bright blue; back green .... **lucionensis** (p. 281)
a^2. Top of head green; back blue.
  b^1. Median upper wing-coverts edged with pure golden yellow. **megalorhychos** (p. 283)
  b^2. Median and greater upper wing-coverts edged with yellowish green.
    c^1. Wing about 195 mm.; head darker green .... **everetti** (p. 283)
    c^2. Wing about 225 mm.; head lighter, more yellowish green. **burbidgei** (p. 284)

242. TANYGNATHUS LUCIONENSIS (Linnæus).

PHILIPPINE GREEN PARROT.

Psittacus lucionensis LINNÆUS, Syst. Nat. ed. 12 (1766), 1, 146.
Tanygnathus luconensis SALVADORI, Cat. Birds Brit. Mus. (1891), 20, 424; GRANT, Ibis (1896), 561 (critical notes).
Tanygnathus luzonensis SHARPE, Hand-List (1900), 2, 30.
Tanygnathus lucionensis McGREGOR and WORCESTER, Hand-List (1906), 49.

Pi-coy', Bohol and Ticao.

Bantayan (*McGregor*); Basilan (*Everett, Steere Exp., Bourns & Worcester, Doherty, McGregor*); Bohol (*McGregor*); Cagayan Sulu (*Guillemard, McGregor*); Calamianes (*Bourns & Worcester*); Caluya (*Porter*); Cebu (*Everett, McGregor*); Guimaras (*Meyer, Steere Exp., Bourns & Worcester*); Lapac (*Guillemard*); Leyte (*Everett*); Luzon (*Meyer, Whitehead, McGregor*): Maestre de Campo (*McGregor & Worcester*); Malanipa (*Murray*); Marinduque (*Steere Exp.*): Masbate (*Steere Exp., Bourns & Worcester*); Mindanao (*Murray, Everett, Koch & Schadenberg, Bourns & Woecster, Goodfellow, Celestino*): Mindoro (*Steere Exp., Schmacker, Bourns & Worcester, McGregor, Porter*); Negros (*Layard, Steere, Everett, Steere Exp., Keay*); Palawan (*Steere, Everett, Lempriere, Whitehead, Platen, Steere Exp., Bourns & Worcester, White*); Panay (*Steere Exp., Bourns & Worcester*); Romblon (*Bourns & Worcester McGregor*); Samar (*Whitehead*): Sibutu (*Everett*); Sibuyan (*Bourns & Worcester, McGregor*); Siquijor (*Bourns & Worcester, Celestino*); Sulu (*Guillemard, Bourns & Worcester*); Tablas (*Bourns & Worcester*); Tawi Tawi (*Bourns & Worcester*); Ticao (*McGregor*); Verde (*McGregor*).

Adult.—Forehead, lores, and sides of face grass-green connecting with the grass-green collar of hind neck;* crown and occiput bright blue; rest of upper parts green, yellowish on the mantle and more or less mixed with light blue on the back; below yellowish green, becoming clear green on abdomen and under tail-coverts; primaries blackish on inner web, dark green on outer web, tips of shorter ones blue; secondaries mostly blue with light green edges; tertials green with blue tips; alula and primary-coverts dark blue, black along the shafts and more or less washed with green; distal greater and median coverts bright blue with yellow-green margins; proximal greater and median coverts with the middle black, surrounded by a narrow line of bright blue followed by a wide edge of old gold; lesser coverts black, some of the proximal ones bordered with blue and old gold; tail grass-green above, dark golden yellow below.

Iris very pale straw, a narrow inner ring of darker yellow; upper mandible bright scarlet, except tip which like the lower mandible is dull yellow, cere black; legs dull green; nails dark horn. Length, 300 to 330 mm. Specimens from different parts of the Archipelago vary greatly in measurements and colors. The sexes do not differ except that the female is a little the smaller. Four males from Ticao average: Wing, 195; tail, 132; culmen from cere, 33; tarsus, 18. Two females from Ticao average: Wing, 187; tail, 126; culmen from cere, 28; tarsus, 18.

Young.—Differs from the adult in having little or no blue on the head and face which are green; back largely sky-blue; blue of wings and coverts largely replaced by green; the coverts bordered with light yellowish green.

"The Philippine green parrot is the common cage bird of the natives, who have doubtless aided in its dispersal. Escaped cage birds were shot by us on several occasions. Called 'picoi' by the natives. Occurs in deep forest, but is also very common in the open, especially about dead trees, where it nests in natural cavities or in deserted holes of the great woodpeckers (*Thriponax*).

"Iris of male birds has an outer ring of white and an inner of brown; iris of females light yellow; legs and feet drab, nails black; bill scarlet, yellowish at tip. Fully adult specimens show very great variability as to size, running from 300 to 395. Fourteen males from Tawi Tawi measure 325 in length; wing, 191; tail, 126; culmen, 29; tarsus, 16; middle toe with claw, 29. Two females from Masbate measure, length, 311; wing, 180; tail, 124; culmen, 30; tarsus, 17; middle toe with claw, 35." (*Bourns and Worcester MS.*)

Grant finds some very considerable differences among specimens of this species from various islands but evidently he considers them to be of less than even subspecific value. Possibly this species will eventually be split into several subspecies or races.

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* In many specimens otherwise in adult plumage, the cheeks are green, but this seems to be invaded by extension of blue from the crown as the birds become older.

243. **TANYGNATHUS MEGALORHYNCHOS** (Boddaert).

LARGE-BILLED PARROT.

Psittacus megalorhynchos BODDAERT, Tabl. Pl. Enl. (1783), 45.
Tanygnathus megalorhynchus SALVADORI, Cat. Birds Brit. Mus. (1891), **20,** 426; SHARPE, Hand-List (1900), **2,** 30.

Balut (*Mearns*). Western New Guinea, Papuan and Molucca Islands, Sangi, Talaut, and Togian Islands.

"*Adult.*—Green, underneath yellowish green; sides yellow; feathers of the interscapular region green, edged with light blue; lower back and uropygium light blue; scapulars black, edged with blue; quills and greater upper wing-coverts blue, edged with green; smaller and median upper wing-coverts black, the last edged with bright yellow; under wing-coverts and axillars yellow; tail above green, with yellow tip, underneath golden yellow, duller towards the base. 'Iris yellowish, with an outer ring white; bill coral-red; feet lead-color.' (*D'Albertis.*) Length, 432; wing, 238 to 254; tail, 150 to 160; bill, 45 to 51; tarsus, 21.

"*Female.*—Has the bill smaller than the male.

"*Young.*—Has the scapulars and the upper wing-coverts not so black and more greenish, and the yellow edges of the same paler." (*Salvadori.*)

244. **TANYGNATHUS EVERETTI** Tweeddale.

BLUE-BACKED PARROT.

Tanygnathus everetti TWEEDDALE, Ann. & Mag. Nat. Hist. (1877), **20,** (4), 533; SALVADORI, Cat. Birds, Brit. Mus. (1891), **20,** 432, pl. 10; SHARPE, Hand-List (1900), **2,** 30; WHITEHEAD, Ibis (1899), 398; MCGREGOR and WORCESTER, Hand-List (1906), 49.

Luzon (*Whitehead*); Mindanao (*Everett, Steere Exp., Celestino*); Negros (*Whitehead*); Panay (*Steere Exp.*).

Male.—General color green; entire head and neck grass-green, the neck with a yellow tinge; mantle grass-green, each feather edged with dark blue; back and rump dark blue; tail-coverts green, some of them edged with blue; wings green, some of the smaller coverts edged with yellowish green; under parts green, some feathers on abdomen and sides of breast slightly edged with blue; tail-feathers above green with yellowish tips, below golden yellow. Bill bright red, feet blackish in skin. Length, 330; wing, 196; tail, 136; culmen from cere, 31.

Female.—Like the male but the bill white. Wing, 195; tail, 138; culmen from cere, 31.

"Rare about Zamboanga. Only one specimen obtained. Mr. Moseley, of the Steere Expedition, killed one specimen in Panay, and Mr. Worcester saw another so near that there was no room for doubt as to its identity. Two specimens in the Jesuit Museum at Manila are marked 'Negros.' We searched for it in vain in Samar." (*Bourns and Worcester MS.*)

"This parrot may prove to have a much wider distribution in the Philippines than is at present known, our discovery of the bird in north Luzon being a mere chance. * * * Male, iris orange; bill rosy red; feet dull olive-brown; female, iris orange; bill creamy white; feet dull olive-brown." (*Whitehead.*)

245. TANYGNATHUS BURBIDGEI Sharpe.

BURBIDGE'S PARROT.

Tanygnathus burbidgei SHARPE, Proc. Zool. Soc. (1879), 313; Hand-List (1900), **21**, 30; SALVADORI, Cat. Birds Brit. Mus. (1891), **20**, 432, pl. 11; MCGREGOR and WORCESTER, Hand-List (1906), 49.

Bongao (*Everett*); Sulu (*Burbidge, Guillemard, Bourns & Worcester*); Tawi Tawi (*Everett, Bourns & Worcester*).

"*Adult.*—Dark green: head and neck bright yellowish green; lower back and uropygium deep turquoise-blue: upper wing-coverts with very narrow yellowish green edges; tail above dark green; underneath dull golden olive. Iris red; bill vermilion; tarsus dull olive-brown." (*Guillemard.*) Length, 406; wing, 223; tail, 157; bill, 38; tarsus, 19.

"*Young.*—A little smaller than the adult, the head somewhat darker and the bill whitish.

"This is a very distinct species, resembling *T. everetti*, but much larger and with the head lighter than the body, and no blue edgings to the feathers of the interscapular region." (*Salvadori.*)

"Common in Sulu but very shy, and seemed to be shot-proof. Unfortunately, too, it was molting at the time of our stay, and but two good specimens were secured. Readily distinguished from *T. lucionensis* by its cry alone. Found in deep forest, and in fruit trees in the open.

"Two males average, 375 in length; wing, 213; tail, 150; culmen, 33; Less common in Tawi Tawi, and observed only in the forest." (*Bourns and Worcester M. S.*)

Genus BOLBOPSITTACUS Salvadori, 1891.

Bill short and very broad; edge of upper mandible strongly sinuate but not toothed; the short, nearly equal, rectrices extend but little beyond the tail-coverts; colors green, yellow, and blue; length, 140 to 165 mm.

*Species.**

a^1. Cheeks blue.
  b^1. Cheeks and collar pale blue........ **lunulatus**, ♂ (p. 285)
  b^2. Cheeks and collar bright blue........ **intermedius**, ♂ (p. 285)
a^2. Cheeks green.
  b^1. Collar deep blue........ **mindanensis**, ♂ (p. 286)
  b^2. Collar yellow, with crescent-like black bands........ { **lunulatus**, ♀ (p. 285) **mindanensis**, ♀ (p. 286) }
  b^3. Collar faint orange-yellow........ **intermedius**, ♀ (p. 285)

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* The key is that of the Catalogue of Birds with slight changes.

246. BOLBOPSITTACUS LUNULATUS (Scopoli).

LUZON GUAIABERO.

Psittacus lunulatus Scopoli, Del. Flor. et Faun. Insubr. (1786), 86.
Bolbopsittacus lunulatus Salvadori, Cat. Birds Brit. Mus. (1891), **20**, 504; Sharpe, Hand-List (1900), **2**, 34; McGregor and Worcester, Hand-List (1906), 49.

Bo-bó-toc, gua-ya-bé-ro, Luzon.

Luzon (*Cuming, Möllendorff, Steere, Meyer, Everett, Steere Exp., Whitehead, McGregor*).

Male.—General color green, lighter below; lores, orbit, cheeks, a narrow line on forehead, and a narrow collar on hind neck pale blue; lower back, rump, and upper tail-coverts light greenish yellow; the longest coverts clear green; primaries, primary-coverts, and alula blue on outer webs, inner webs black; ends of primaries more or less green; on under side of wing a pale yellowish band across inner webs of secondaries and shorter primaries; rectrices green above, blue below. Iris brown, cere black; bill black, with base white; legs dull green; nails horn-brown. In the female all of the lower mandible is dirty white. Three males and three females from Bataan Province average, wing, 98; tail, 36; culmen from cere, 18; tarsus, 13.

Female.—Differs from the male in having the lower parts lighter green; blue of head confined to feathers of lower cheeks overhanging chin on each side; a narrow ring of light green around eye; collar on hind neck yellow, each feather with two narrow crescentic lines of blackish green; lower back and rump green, with blackish crescentic marks. Same size as the male.

Young.—"Young male resembles the female." (*Salvadori.*)

247. BOLBOPSITTACUS INTERMEDIUS Salvadori.

INTERMEDIATE GUAIABERO.

Bolbopsittacus intermedius Salvadori, Cat. Birds Brit. Mus. (1891), **20**, 505; Sharpe, Hand-List (1900), **2**, 34; McGregor and Worcester, Hand-List (1906), 49.

Leyte (*Whitehead*); Samar (*Bourns & Worcester, Whitehead*).

Male.—"Similar to the male of *B. lunulatus*, from which it differs in having the face of a deeper blue with a purple tinge, and a blue collar on the lower part of the hind neck brighter and like that of *B. mindanensis;* the under parts are of a deeper and brighter green than either in *B. lunulatus* or in *B. mindanensis;* bill black; feet greenish. Length, 147; wing, 99; tail, 33; bill, 19; tarsus, 10." (*Salvadori.*)

Female.—"It differs from the male in having the blue of the head confined to the throat, the cheeks being light green. Around the eye a ring of green lighter than that of crown. The blue collar is replaced by an indistinct collar of faint orange-yellow. Rump only slightly lighter than back and green, not yellow as in male. Under surface slightly lighter and more yellowish. Thighs green instead of yellow.

"A *young male* is like the female but has less blue on sides of throat." (*Bourns and Worcester.*)

"A male measures 168 in length; wing, 98; tail, 33; culmen, 18; tarsus, 12; middle toe with claw, 22. Two females measure: Length, 168; wing, 95; tail, 35; culmen, 19; tarsus, 12; middle toe with claw, 20. Iris dark brown; legs and feet light olive-green; nails black; bill blackish at tip, gray at base; cere black. Food guavas. All of the specimens obtained were shot from a flock found in a mangrove swamp the day before our departure from Samar." (*Bourns and Worcester MS.*)

248. BOLBOPSITTACUS MINDANENSIS (Steere).

MINDANAO GUAIABERO.

Cyslopsitta mindanensis STEERE, List Birds & Mams. Steere Exped. (1890), 6.
Bolbopsittacus mindanensis SALVADORI, Cat. Birds Brit. Mus. (1891), **20**, 506; SHARPE, Hand-List (1900), **2**, 34; MCGREGOR and WORCESTER, Hand-List (1906), 49; GRANT, Ibis (1906), 494.

Mindanao (*Cuming, Everett, Steere Exp., Bourns & Worcester, Goodfellow, Celestino*); Panaon (*Everett*).

"*Adult male.*—Differs from that of *B. lunulatus* in having the cheeks green, the blue round the eyes separated by the green cheeks from the blue of the throat; the collar on the lower hind neck is of a brighter and deeper blue; the green of the head has a yellowish tinge, contrasting with the purer green color of the back. Iris dark brown; bill black, the base of the maxilla light gray; feet greenish." (*Everett.*) Length, about 152; wing, 96 to 99; tail, 33; bill, 18; tarsus, 10.

"*Adult female.*—Exactly similar to the female of *B. lunulatus.*" (*Salvadori.*)

"Two males average, 159 in length; wing, 97; tail, 39; culmen, 18; tarsus, 12; middle toe with claw, 20. Six females, length, 154; wing, 96; tail, 41; culmen, 18; tarsus, 12; middle toe with claw, 19. Iris brown; legs and feet light olive-green. Called by the natives 'guayabero' from its habit of eating guavas. On the few occasions when we met with this species it occurred in flocks. It is a common cage bird in Mindanao. We searched in vain for it in Basilan, but are by no means satisfied that it does not exist there." (*Bourns and Worcester MS.*)

Genus LORICULUS Blyth, 1849.

Length, about 150 mm.; bill compressed; tail short, rectrices slightly graduated and extending a little beyond tail-coverts; general color grass-green, more yellowish below; forehead, rump, and upper tail-coverts scarlet; tail green above, blue below; under surface of primaries black, widely edged with blue on inner webs; adult males with a large, oval scarlet spot on throat and breast; bases of the feathers yellow; adult females and immature males with blue cheeks; young in first plumage with scarlet rump and tail-coverts, but neither blue nor red on head.

*Species.**

a^1. Bill orange red.
  b^1. No blue on crown.
    c^1. Red on head confined to the forehead.
      d^1. Rectrices dark green above, with very little if any blue.
        e^1. Interscapular region golden yellow, more or less tinged with orange; in the adult male a red patch on throat and cheeks green; in female no red patch on throat; cheeks and chin bluish. **chrysonotus** (p. 288)
        e^2. Interscapular region green, with no golden orange tinge; cheeks green in the male, bluish in the female.
          f^1. A golden-orange band on hind neck, more or less orange-yellow on the crown.
            g^1. Vertex bright orange-yellow, sharply defined in the male; slightly tinged with orange and cheeks blue in female.
              h^1. Orange crown-patch larger.................................... **regulus** (p. 288)
              h^2. Orange crown-patch smaller.................................. **bournsi** (p. 289)
            g^2. Vertex and hind neck with a very slight yellow tinge, both in males and females; female like that of *regulus*. **philippensis** (p. 290)
          f^2. No orange band on hind neck or at most only a trace; red of forehead ending sharply against bright green of crown. **mindorensis** (p. 290)
      d^2. Rectrices dark green above, lateral rectrices deep blue toward the tips. **siquijorensis** (p. 291)
    c^2. Red on head continuous from forehead to nape and becoming orange on nape.
      d^1. Crown-patch wider, spreading out posteriorly and ending broadly.
        e^1. Back less heavily washed with golden yellow................. **apicalis** (p. 292)
        e^2. Back more heavily washed with golden yellow.......... **dohertyi** (p. 292)
      d^2. Crown-patch narrower, tapering sharply to a point posteriorly. **worcesteri** (p. 293)
a^2. Bill black.
  b^1. A deep blue spot on middle of crown.. **galgulus** (p. 294)
  b^2. No blue on crown.. **bonapartei** (p. 294)

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* The status of the following is doubtful:

Loriculus sp. Salvadori.

Loriculus sp. SALVADORI, Cat. Birds Brit. Mus. (1891), **20,** 530 (foot note); SHARPE, Hand-List (1900), **2,** 36; MCGREGOR and WORCESTER, Hand-List (1906), 50.

Mindanao (*Cuming*).

"It is about the size of *L. siquijorensis;* in coloring it comes near the female of *L. apicalis*, but has the red of the crown not reaching the occiput; the tail above shows much blue towards the tip of the lateral feathers. I add the description of the specimen, which is not in very good condition: Green; forehead and vertex red; nape with a slight tinge of orange; cheeks and throat blue; rump and upper tail-coverts red; tail green above, the lateral feathers blue towards the tip; tail underneath deep blue; bill orange. Length, 165; wing, 98; tail, 44." (*Salvadori.*)

249. **LORICULUS CHRYSONOTUS** Sclater.

CEBU COLASISI.

Loriculus chrysonotus SCLATER, Ibis (1872), 324, pl. 11; SALVADORI, Cat. Birds Brit. Mus. (1891), **20**, 522; SHARPE, Hand-List (1900), **2**, 36; MCGREGOR and WORCESTER, Hand-List (1906), 50.

Co-lan'-si, Toledo, Cebu.
Cebu (*Meyer, Steere, Everett, Steere Exp., Bourns & Worcester, McGregor*).

"*Adult male* (*type*).—Green, underneath yellowish green; forehead, rump, and upper tail-coverts red; vertex, occiput, nape, and upper back golden yellow; an obsolete spot in the middle of the nape, also the upper back, tinged with orange; cheeks, sides of the head and of the neck grass-green; a large patch on the throat orange-red, the yellow color of the base of the feathers showing through; sides of the lower back tinged with blue; quills and tail above dark green; inner web of the quills and tail beneath blue; tail-feathers tipped with light green. 'Iris brown; bill orange-red; feet orange.' (*Everett.*) Length, 157; wing, 99; tail, 51; bill, 15; tarsus, 11.

"*Adult female.*—Differs from the male in having the anterior part of the cheeks and throat tinged with blue; no red patch on the throat; the golden yellow tinge on the head and nape not so bright; the upper back, or interscapular region, green, slightly washed with golden orange, and the blue tinge on the sides of the lower back paler." (*Salvadori.*)

"This was the only *Loriculus* which we failed to find abundantly in coconut-trees where the trees themselves were accessible. In 1888 several days of hard work in the great coconut-groves near Carmen, Cebu, brought us but a single specimen. In 1893, however, we found it quite abundant in the woods near Toledo. It is possible that its disappearance from the coconut-groves of the east coast is due to the lack of suitable breeding ground near by. The forest has been almost entirely cleared from the island, and the little which remains will soon be gone.

"Five males average, 154 in length; wing, 96; tail, 54; culmen, 14; tarsus, 11; middle toe with claw, 19. Five females, length, 157; wing, 97; tail, 55; culmen, 13; tarsus, 11; middle toe with claw, 20. Iris dark brown; legs and feet orange-red; nails black; bill usually scarlet, may be pale red or even yellow." (*Bourns and Worcester MS.*)

250. **LORICULUS REGULUS** Souancé.

CENTRAL ISLAND COLASISI.

Loriculus regulus SOUANCÉ, Rev. et Mag. de Zool. (1856), 222; SALVADORI, Cat. Birds Brit. Mus. (1891), **20**, 523; SHARPE, Hand-List (1900), **2**, 36; MCGREGOR and WORCESTER, Hand-List (1906), 50.

Loriculus panayensis TWEEDDALE, Challenger Report (1881), **2**, Zool. pt. 8, pl. 1.

Có-si, Ticao and Masbate.

Guimaras (*Steere Exp., Bourns & Worcester*); Masbate (*Steere Exp., Bourns & Worcester, McGregor*); Negros (*Meyer, Everett, Steere Exp., Whitehead, Bourns & Worcester, Keay*); Panay (*Murray, Steere, Steere Exp., Bourns & Worcester*); Ticao (*McGregor*).

Adult male.—A wide band of golden yellow across vertex, touching the scarlet forehead; a narrow band of golden orange on nape; mantle and back grass-green. A male from Ticao measures: Length, 145; wing, 93; tail, 46; culmen from cere, 16.

Adult female.—Vertex green, tinged with yellow; a narrow band of golden orange on nape; cheeks tinged with light blue; throat and breast yellowish green. A female from Ticao measures: Length, 150; wing, 93; tail, 42; culmen from cere, 14.

"Exceedingly abundant in the central Philippines, especially in Masbate. Though a large series of specimens was obtained from Tablas, Romblon, and Sibuyan, none of the males show so much yellow on the crown as in typical *L. regulus*. Specimens of *L. philippensis* from Marinduque collected by the Steere Expedition show a decided wash of yellow on the crown, and it seems quite possible that other intermediate forms between *L. philippensis* and *L. regulus* may eventually be discovered in Banton and the other islands which connect the Tablas-Romblon-Sibuyan group with Luzon.

"Ten males from Masbate measure, 149 in length; wing, 90; tail, 47; culmen, 14; tarsus, 12; middle toe with claw, 19. Thirteen females from the same locality, length, 147; wing, 91; tail, 47; culmen, 13; tarsus, 10; middle toe with claw, 18. Iris brown; legs and feet orange to brown or yellow; nails nearly black; bill deep orange-red to brownish red." (*Bourns and Worcester MS.*)

251. **LORICULUS BOURNSI** McGregor.

BOURNS'S COLASISI.

Loriculus regulus WORCESTER and BOURNS, Proc. U. S. Nat. Mus. Wash. (1898), **20,** 557, no. 265 (part).

Loriculus bournsi McGREGOR, Bur. Govt. Laboratories, Manila (1905), **25,** 16; McGREGOR and WORCESTER, Hand-List (1906), 50.

Romblon (*Bourns & Worcester, McGregor*); Sibuyan (*Bourns & Worcester, McGregor*); Tablas (*Bourns & Worcester, Celestino*).

Male.—Similar to *L. regulus* but the yellow patch on crown much smaller. Wing, 97; tail, 46; culmen from front margin of cere, 14.

Female.—Similar to the female of *L. regulus.*

This form which is merely a subspecies of *Loriculus regulus* is abundant in Romblon, Tablas, and Sibuyan.

252. LORICULUS PHILIPPENSIS (P. L. S. Müller).

LUZON COLASISI.

Psittacus philippensis P. L. S. MÜLLER, Syst. Nat. Suppl. (1776), 80.
Loriculus philippensis SALVADORI, Cat. Birds Brit. Mus. (1891), **20**, 524; SHARPE, Hand-List (1900), **2**, 36; McGREGOR and WORCESTER, Hand-List (1906), 50.

Co-la-sí-si, Manila.

Banton (*Celestino*); Catanduanes (*Whitehead*); Luzon (*Meyer, Heriot, Möllendorff, Steere Exp., Bourns & Worcester, Whitehead, McGregor*); Marinduque (*Steere Exp.*).

Adult male.—Forehead red, bordered behind by a narrow line of yellow; crown faintly tinged with yellow; a narrow golden orange band or spot on nape. Length, 160; wing, 92; tail, 42; culmen from cere, 15.

Adult female.—Differs from the male in having the cheeks blue and under parts yellowish green with no red breast-patch. Length, 152; wing, 93; tail, 45; culmen from cere, 13.

"The habits of the Philippine representatives of this genus agree so closely that a description of one species will suffice for all. The eight Philippine species at present known are all peculiar to the group. They are common in the deep forests of the wilder islands, but are most readily observed and easily obtained in the coconut groves near and in the native villages, where they feed on the young blossoms and drink the 'tuba.' The latter article of diet is the palm juice which the natives obtain by cutting off the blossom stalks of the coconut trees and fitting a joint of bamboo over the cut ends. The *Loriculi* are inordinately fond of this juice, and many of our specimens were shot from the 'bombons' (bamboo tubes), as they drank it. They are by all odds the commonest cage birds of the Islands, and are frequently carried by the natives from place to place. The various native names 'colacici,' 'cucci,' 'culanci' are all attempts to imitate the note. They have the peculiar undulating flight of woodpeckers, and give their shrill whistle at frequent intervals when on the wing. Usually very shy in the woods, but exceedingly bold in the coconut groves. Almost never seen in flocks." (*Bourns and Worcester MS.*)

253. LORICULUS MINDORENSIS Steere.

MINDORO COLASISI.

Loriculus mindorensis STEERE, List Birds & Mams. Steere Exped. (1890), 6; SALVADORI, Cat. Birds Brit. Mus. (1891), **20**, 526; SHARPE, Hand-List (1900), **2**, 36; McGREGOR and WORCESTER, Hand-List (1906), 50.

Co-la-sí-si, Mindoro.

Mindoro (*Steere Exp., Schmacker, Everett, Whitehead, Bourns & Worcester, McGregor, Porter*).

Adult male.—Red of forehead sharply defined against the bright green of crown; no yellow band on nape or with a faintly indicated spot. Length, 152; wing, 99; tail, 46; culmen from cere, 15.

Adult female.—Similar to the male but cheeks slightly blue, throat and breast yellow. Length, 152; wing, 97; tail, 47; culmen from cere, 14.

"Abundant both in the forests of the interior and the coconut groves along the coast. Six males measure, 152 in length; wing, 80; tail, 47; culmen, 15; tarsus, 11; middle toe with claw, 18. A female measures, 159 in length; wing, 92; tail, 52; culmen, 15; tarsus, 11; middle toe with claw, 20. Iris dark brown; legs and feet orange to dirty yellow; nails nearly black; bill scarlet, black at tip." (*Bourns and Worcester MS.*)

254. **LORICULUS SIQUIJORENSIS** Steere.

SIQUIJOR COLASISI.

Loriculus siquijorensis STEERE, List Birds & Mams. Steere Exped. (1890), 6; SALVADORI, Cat. Birds Brit. Mus. (1891), **20**, 526; SHARPE, Hand-List (1900), **2**, 36; MCGREGOR and WORCESTER, Hand-List (1906), 50.

Siquijor (*Steere Exp., Bourns & Worcester, Celestino*).

Adult male.—Forehead bright scarlet, ending sharply against the green of crown; no yellow on the head and no yellow neck-band; rump and upper tail-coverts dark poppy-red; red throat-patch small; all rectrices, except central pair, tipped with light blue. Length, 165; wing, 100; tail, 55; culmen from base, 16; tarsus, 11.

Female.—Similar to the male; red spot on forehead smaller and sides of forehead, lores, cheeks, chin, and upper throat sky-blue; no red on the breast. "Eyes brown; feet yellow; nails black." (*Celestino.*) Wing, 100; tail, 55; culmen from base, 14; tarsus, 12.

Young birds resemble the adult female but the red of forehead is much reduced and the red breast-patch is wanting in very young males.

"The Siquijor colasisi is a well-marked species which seems to be strictly confined to the little island of Siquijor. There is but little forest on this island, and *L. siquijorensis* is found in the coconut groves, fruit trees, and bamboo clumps. It is sharply distinct from *L. chrysonotus* and *L. regulus,* and more resembles *L. apicalis.* The female shows more blue about the head than does that of any other Philippine species, having the cheeks, lores, a line over the eye, and entire throat heavily washed with the color.

"Measurements of two males: Wing, 94; tail, 46; culmen, 14; tarsus, 11; middle toe with claw, 18. Six females: Length, 162; wing, 98; tail, 52; culmen, 13; tarsus, 12; middle toe with claw, 20. Bill scarlet to orange; legs and feet pale yellow to orange, nails nearly black." (*Bourns and Worcester MS.*)

255. **LORICULUS APICALIS** Souancé.

MINDANAO COLASISI.

Loriculus apicalis Souancé, Rev. et Mag. de Zool. (1856), 220, 221; Salvadori, Cat. Birds Brit. Mus. (1891), **20**, 528; Sharpe, Hand-List (1900), **2**, 36; McGregor and Worcester, Hand-List (1906), 50.

Loriculus hartlaubi Tweeddale, Proc. Zool. Soc. (1877), 819, pl. 82.

Bazol (*Everett*); Dinagat (*Everett*); Mindanao (*Cuming, Everett, Koch & Schadenberg, Steere Exp., Bourns & Worcester, Celestino, Goodfellow, Waterstradt*).

"*Adult male.*—Green; crown red, changing into orange on the nape; back and scapulars washed more or less with golden; rump and upper tail-coverts rich crimson; sides of the rump tinged with bluish; cheeks and under parts yellowish green; a red patch on the throat, with the base of the feathers yellow; quills black, dark green on the outer web, blue on the inner web below; tail above green, the lateral feathers blue toward the tip, and tipped with pale bluish green; tail underneath blue. 'Iris brown, bill red-orange, cere and feet orange.' (*Everett.*) Length, 147; wing, 91; tail, 43; bill, 15; tarsus, 10.

"*Female.*—Differs from the male in having the lores, cheeks, chin, and upper throat pale blue, and no red patch on the lower throat and upper breast.

"*Young.*—Crown-feathers green at the base and tipped with orange instead of red; the back pure green, not suffused with yellow, the uropygium less intense crimson, mixed more or less with green; cheeks, chin, and throat green, but in a second stage these parts become more and more tinged with blue." (*Salvadori.*)

"Abundant in Zamboanga. The Panay record made by Count Salvadori for this species on the strength of a specimen collected by Mr. Worcester and marked from that island is certainly an error, probably due to the misplacing of a label, as Mr. Worcester never shot *L. apicalis* in Panay." (*Bourns and Worcester MS.*)

256. **LORICULUS DOHERTYI** (Hartert).

DOHERTY'S COLASISI.

Loriculus apicalis Salvadori, Cat. Birds Brit. Mus. (1891), **20**, 528 (part); Sharpe, Hand-List (1900), **2**, 36 (part); McGregor and Worcester, Hand-List (1906), 50 (part).

Loriculus philippensis dohertyi Hartert, Novit. Zool. (1906), **13**, 757.

Basilan (*Steere Exp., Everett, Bourns & Worcester, McGregor*).

"*Adult.*—Three males and three females from Basilan show at a glance a much stronger and more reddish golden yellow wash on the back than in the specimens from Mindanao. In the old males the whole back appears to be golden orange, about the apical half of the feathers being golden orange. In the females it is as strong, or nearly so, as in the males, or in some specimens less developed, though always evident." (*Hartert.*)

Male.—Length, 152; wing, 94; tail, 47; culmen from cere, 15.

Female.—Wing, 94; tail, 51; culmen from cere, 12.

"The Basilan birds differ from Mindanao birds in having the nape scarlet, not golden, and in having the feathers of the back broadly tipped with orange. The back shows nearly as much color as in *L. chrysonotus*. The species is very rare in Basilan however, and while we think it probable that the Mindanao and Basilan birds may eventually be separated, we do not feel warranted in establishing a new species with so small an amount of material at our disposal.

"Two males average, 159 in length; wing, 89; tail, 44; culmen, 14; tarsus, 97; middle toe with claw, 15. Four females, length, 144; wing, 83; tail, 45; culmen, 13; tarsus, 12; middle toe with claw, 17. Legs and feet orange; nails black; bill scarlet." (*Bourns and Worcester MS.*)

257. **LORICULUS WORCESTERI** Steere.

WORCESTER'S COLASISI.

Loriculus worcesteri Steere, List Birds & Mams. Steere Exped. (1890), 6; Sharpe, Hand-List (1900), **2**, 36; McGregor and Worcester, Hand-List (1906), 50.

Loriculus apicalis Salvadori, Cat. Birds Brit. Mus. (1891), **20**, 528 (part).

Co-si, Bohol.

Bohol (*Everett, McGregor*); Leyte (*Everett, Steere Exp., Whitehead*); Samar (*Steere Exp., Bourns & Worcester, Whitehead*).

Adult male.—Entire forehead and crown red, tinged with orange on occiput where it tapers to a point; back and mantle slightly tinged with yellow; red throat-patch much smaller than in *L. philippensis* and *mindorensis*. Length, 152; wing, 88; tail, 45; culmen from cere, 15.

Adult female.—Top of head similar to that of the male; cheeks and upper throat light blue; throat and breast yellowish green. Length, 152; wing, 94; tail, 48; culmen from cere, 13.

"*L. worcesteri* is scarce about Catbalogan, and as there are no coconut groves near the town, we had great trouble in securing a good series of specimens, being less fortunate in this respect than was the Steere Expedition. Measurements from two males: Wing, 91; tail, 43; culmen, 15; tarsus, 10; middle toe with claw, 18. Iris dark brown; legs and feet orange; bill red; nails black." (*Bourns and Worcester MS.*)

258. **LORICULUS GALGULUS** (Linnæus).

BLUE-CROWNED COLASISI.

Psittacus galgulus LINNÆUS, Syst. Nat. ed. 10 (1758), **1**, 103.
Loriculus galgulus SALVADORI, Cat. Birds Brit. Mus. (1891), **20**, 531; SHARPE, Hand-List (1900), **2**, 36; OATES and REID, Cat. Birds' Eggs (1903), **3**, 17; MEARNS, Proc. Biol. Soc. Wash. (1905), **18**, 90; McGREGOR and WORCESTER, Hand-List (1906), 50.

Cagayan Sulu (*Mearns*). Malay Peninsula, Sumatra, Borneo, Banka, Nias.

"*Adult male.*—Green; a deep blue spot on middle of crown; a golden yellow triangular spot on interscapular region; a bright yellow band across lower back; rump and upper tail-coverts scarlet-red; a large scarlet-red patch on throat; wings and tail above green; greater under wing-coverts, inner web of quills underneath, and tail below verditer-blue; tail tipped with yellowish green. 'Bill and cere black; iris deep brown; feet buffy brown.' (*Davison*). Length, about 132; wing, 84; tail, 36; bill, 11; tarsus, 10.

"*Adult female.*—Green of under parts duller and more yellowish; blue crown-spot duller; orange patch nearly obsolete; no yellow band across lower back; rump and upper tail-coverts duller red, the coverts shorter than in the male; no red patch on throat.

"*Young.*—Dull green, all the feathers with narrow dusky edges; forehead gray, with a bluish tinge on the sides; no blue spot on crown; no orange patch on interscapulars; rump green, with edges of feathers dull red. 'Bill, cere, legs, and feet dull yellow; bill shaded dusky.' (*Davison.*)" (*Salvadori.*)

This species is included in the list of Philippine birds on the evidence of a pair of cage birds obtained by Mearns, in Cagayan Sulu. These were probably brought from Borneo.

259. **LORICULUS BONAPARTEI** Souancé.

BONAPARTE'S COLASISI.

Loriculus bonapartei SOUANCÉ, Rev. et Mag. de Zool. (1856), 222; SALVADORI, Cat. Birds Brit. Mus. (1891), **20**, 53; Ibis (1891), 48, pl. 3; SHARPE, Hand-List (1900), **2**, 36; McGREGOR and WORCESTER, Hand-List (1906), 50.

Bongao (*Everett*); Sulu (*Guillemard, Platen, Bourns & Worcester*); Tawi Tawi (*Bourns & Worcester, Everett*).

"*Adult male.*—Green, under parts a little lighter; head above red, scarlet on the forehead, shading off into a rich orange on the occiput; rump and upper tail-coverts red; a large patch on the throat also red; outer web of the primaries and tail-feathers dark green, the last tipped with lighter green; inner webs of the quills underneath and under surface of the tail-feathers verditer-blue. Bill horny black; feet in the dried skin dusky, nearly black. Length, about 152; wing, 94; tail, 49; bill, 15; tarsus, 11. (Museum Rothschild.)

"*Female.*—No gular red patch, lores and cheeks blue. (Museum Rothschild.)" (*Salvadori.*)

"Common in the scattering trees between the town of Sulu and the hills back of it. Found about flowering trees in Tawi Tawi. Bill of adult birds *coal black.*

"Seven males from Tawi Tawi measure, 148 in length; wing, 90; tail, 49; culmen, 14; tarsus, 10; middle toe with claw, 17. Six females from Sulu measure, length, 144; wing, 93; tail, 50; culmen, 13; tarsus, 11; middle toe with claw, 19. Iris black; legs and feet light to dark brown; nails black; bill black in adults, yellow in immature birds." (*Bourns and Worcester MS.*)

Order CORACIIFORMES.

FROGMOUTHS, ROLLERS, KINGFISHERS, HORNBILLS, BEEBIRDS, GOATSUCKERS, AND SWIFTS.

Claw of hind toe shorter than that of third toe; two toes united for their basal joint; or, if toes are free, then the feet small and weak and gape deeply cleft. Toes usually three in front, one behind; in some, two in front and one behind; rarely, four in front and in pairs. Bill large and with a horny crest, often bright red in color, when not red the surface more or less sculptured (Bucerotes); or, bill long, straight, tapering, and sharp, usually red or black (Halcyones); or, bill slender and gently curved, tail long (Meropes); or, bill stout, gape wide (Coraciæ and Podargi); or, bill minute and weak, gape wide and deeply cleft (Caprimulgi and Micropodii). This order is an extremely unsatisfactory one as its members have few external characters of ordinal value. The suborders Caprimulgi and Micropodii seem to be particularly out of place.

Suborders.

a^1. Bill large and strong, or very broad at base, or long and sharp; culmen greater than tarsus.
  b^1. Bill very large, crested, or sides plicated, or both; birds of large size. **Bucerotes** (p. 326)
  b^2. Bill long or broad, neither crested not plicated.
    c^1. Bill long and tapering to a sharp point.
      d^1. Middle tail-feathers not greatly prolonged; culmen straight or nearly so. **Halcyones** (p. 303)
      d^2. Middle tail-feathers greatly prolonged; culmen gently decurved for its entire length .... **Meropes** (p. 339)
    c^2. Bill short and wide; width at base more than half of culmen.
      d^1. Nostrils exposed; colors black, blue, and bluish green in large masses. **Coraciæ** (p. 301)
      d^2. Nostrils hidden by stiff feathers; colors white, blackish brown, and rufous-brown in spots and vermiculations.................... **Podargi** (p. 296)
a^2. Bill small and weak, deeply cleft; culmen much less than tarsus (except in *Hemiprocne*).
  b^1. Wings when folded not reaching tip of tail; wings mottled and spotted with black and shades of reddish brown.................... **Caprimulgi** (p. 342)
  b^2. Wings when folded reaching beyond tip of tail; wings blackish or steel-blue, never mottled nor spotted.................... **Micropodii** (p. 350)

Suborder PODARGI.

Family **PODARGIDÆ.**

Bill very broad and flat; ten tail-feathers; middle toe-nail not pectinate; plumage mottled.

Genus BATRACHOSTOMUS Gould, 1838.

Bill extremely broad and short; culmen strongly curved; nostrils covered by long hair-like plumes; eyes rather large; a bunch of elongated feathers behind each eye; tarsus short, feet weak; outer and middle toes united for half of their basal joint; tail moderately long, outermost rectrices very short, the next pair considerably shorter than third; plumage lax, in color reddish brown, buff, or gray, with spots of white or creamy fawn, barred and vermiculated with blackish brown. Birds of this genus fly at night feeding upon insects and remain concealed in dense forest during the day. Their capture is extremely uncertain and difficult. The nest is a small pad-like structure saddled on a branch of a tree; the single egg is white.

Species.

a^1. A white or buff band across chest; another similar band across lower breast.
  b^1. Bill larger; culmen from base, 25 mm. or more.
    c^1. Wing longer, 155 mm. or more .... **septimus** (p. 296)
    c^2. Wing shorter, 140 mm. or less .... **menagei** (p. 298)
  b^2. Bill shorter; culmen from base, about 20 mm.; wing, about 130. **microrhynchus** (p. 297)
a^2. No light band across under parts; throat and abdomen much mottled with cream-color or light buff.
  b^1. Wing more than 130 mm .... **javensis** (p. 300)
  b^2. Wing less than 125 mm .... **affinis** (p. 301)

260. **BATRACHOSTOMUS SEPTIMUS** Tweeddale.

TWEEDDALE'S FROGMOUTH.

Batrachostomus septimus TWEEDDALE, Proc. Zool. Soc. (1877), 542; Challenger Report, Zool. (1881), **2**, pt. 8, pl. 2; HARTERT, Cat. Birds Brit. Mus. (1892), **16**, 638; SHARPE, Hand-List (1900), **2**, 43; MCGREGOR and WORCESTER, Hand-List (1906), 50.

Basilan (*Celestino*); Mindanao (*Murray, Everett, Koch & Schadenberg, Bourns & Worcester, Goodfellow, Celestino*).

Male.—General color rufous-brown; wings and upper parts chestnut-rufous mixed with fine lines of lighter brown and blackish brown, taking the form of obsolete bars on rectrices; a narrow white band across mantle, bordered on each side with blackish brown; outer webs of scapulars whitish, each feather with a black spot near its tip; a wide creamy band across the fore breast, each feather tipped and double barred with narrow lines of blackish brown, the double bars concealed; another light band about 30 mm. posterior to this with blackish tips but without the double bars; crissum buffy; primaries and secondaries blackish, mixed with chestnut-rufous on outer webs; primary-coverts nearly totally black, each of the secondary-coverts with a large white spot at tip, preceded by a smaller black spot; axillars buff. A male from Basilan measures: Wing, 160; tail, 121; culmen from base, 29; width of bill at gape, 41; tarsus, 16.

Female.—Similar to the male but colors less rufescent; white collar less sharply defined and the light webs of scapulars washed with rufous. A female from Basilan measures: Wing, 150; tail, 114; culmen from base, 27; width of bill at gape, 38; tarsus, 14.

This species is easily distinguished from *B. javensis* by its larger size and comparatively much shorter tail, and by the sexes being similar in their general coloration.

261. BATRACHOSTOMUS MICRORHYNCHUS Grant.

SMALL-BILLED FROGMOUTH.

Batrachostomus microrhynchus GRANT, Bull. Brit. Orn. Club (1895), 4, 41; Ibis (1895), 463; (1896), 121; WHITEHEAD, Ibis (1899), 384; SHARPE, Hand-List (1900), 2, 43; MCGREGOR and WORCESTER, Hand-List (1906), 50.

Luzon (*Whitehead, McGregor*).

"*Adult male in very dark plumage.*—Crown brownish black marked and mottled with buff, nuchal band of the same color; mantle and back very similar to the crown, but with more buff finely intermixed; scapulars mostly clear buff, with mottled black barrings on the inner webs and a black subterminal spot; wing-coverts black mottled with rufous, most of the median and greater with a whitish spot at the extremity of the outer web; sides of head, chin, and throat finely mottled and barred with black and buff, darker on the hinder cheek; bands above and below the chest whitish, edged with black; chest whitish buff, finely mottled with black; belly rather paler and more coarsely marked.

"*Adult female.*—General color uniform chestnut, with scarcely a trace of any black markings except on the secondary quills; in other respects very similar in plumage to the female of *B. septimus*. The outer webs of the scapulars rufous-buff, each with a small subterminal black spot; greater and median wing-coverts with a terminal white spot on the outer web, edged internally with black; nuchal and pectoral bands white, edged with black." (*Grant.*)

Another male specimen was taken by Whitehead near Cape Engaño, northern Luzon. "It is an interesting specimen in the chestnut phase of plumage, the upper parts being like those of the female type described [above], but the outer webs of the scapulars are pale buff, as in the dark-colored male type, though the subterminal black spots are small, as in the female. The feathers of the throat and of the chest between the white bands are paler chestnut than in the female, and have white middles irregularly edged and barred with black; belly, flanks, and under tail-coverts brownish white, with a few faint reddish brown mottlings.

"As will be seen, the length and width of the culmen are slightly greater than in the types. There can not be the slightest doubt that these three differently plumaged birds all belong to one species, though Mr. Whitehead was inclined to believe that the dark and rufous forms represented distinct species." (*Grant.*)

Grant's measurements of the three specimens described above, reduced to millimeters, are as follows: Male and female from Lepanto: Wing, 127 to 132; tail, 99 to 102; tarsus, 17 to 18; length of culmen, 19; width at gape, 29. Male from Cape Engaño: Wing, 131; tail, 104; tarsus, 18; length of culmen, 22; width of gape, 32.

In a female from Irisan, Benguet Province, the iris was pale yellowish; bill light horn-brown, basal half of cutting edge dull pea-green; inside of mouth brighter pea-green; legs and nails dirty white; edge of eyelids brown. Wing, 132; tail, 104; culmen from base, 20; width of bill at gape, 30; tarsus, 17.

262. BATRACHOSTOMUS MENAGEI Bourns and Worcester.

MENAGE'S FROGMOUTH.

Batrachostomus menagei Bourns and Worcester, Minnesota Acad. Nat. Sci. Occ. Papers (1894), 1, 11; Sharpe, Hand-List (1900), 2, 43; McGregor and Worcester, Hand-List (1906), 51.
? *Batrachostomus* sp. inc. Clarke, Ibis (1900), 355.

Cow-cow, Negros.
Negros (*Keay*); Panay (*Bourns & Worcester*).

"*Adult male.*—Top of head rich dark-brown, slightly washed with black; feathers of forehead buff, tipped with fulvous brown, forming a distinct buff stripe reaching back to the eye; feathers of crown lighter fulvous with spots of rufous-brown on the edges, each spot being surrounded with black; some of the feathers tipped with rufous, and having black subterminal bands; occiput and nape with less black; elongated auriculars tawny-buff, with black spots and bars, the tips being black; sides of face tawny-buff streaked with black, lighter below; a distinct buffy white nuchal collar formed by white subterminal bars on feathers of neck, the bases of which are dark buff thickly vermiculated with black; their tips are black, and a black band intervenes between the white subterminal band and the buffy bases of the feathers; feathers of back dark brown, thickly vermiculated with black; feathers of rump fulvous-brown, spotted with black and reddish brown toward their tips, these colors assuming the form of irregular bands on upper tail-coverts; a few of the shorter scapulars almost black with irregular bars of dark rufous-brown; outer webs of longer scapulars light buff, the two outermost feathers entirely of this color; the next scapulars have inner webs thickly vermiculated with black; inner and longest scapulars have both webs marked in this manner, their inner webs being the darker; last of the longer scapulars with an irregular terminal spot of black; lesser wing-coverts nearly black, tipped with chocolate-brown; bases of primary-coverts fulvous brown, their outer webs heavily spotted with rufous-brown, inner webs less so, and a subterminal bar of black crossing entire outer web and half of inner web, all the feathers tipped with prominent spots of creamy white; secondary-coverts like primary-coverts but the black bar and white spot confined to outer web; primaries fulvous-brown when held toward light, changing to smoky brown when held away from light; outer webs spotted with buffy white throughout their entire length, the spots being much lighter on the second and third primaries; tips of feathers mottled with rufous-brown; general color of secondaries same as primaries, their outer webs and tips being spotted with rufous-brown and these spots in turn being speckled with fulvous-brown; inner three secondaries speckled with fulvous-brown, rufous-brown, and creamy white, each feather with a terminal spot of fulvous; general color of tail rufous-brown, distinctly barred with lighter rufous-brown, each of these bars succeeded by a narrow irregular bar of black, the entire feather thickly speckled with black and each feather having a small black terminal spot; throat and fore breast like sides of face; a buffy white pectoral band continuous with nuchal collar and succeeded by a second creamy white band, the feathers between the two bands being brown, thickly vermiculated with black and creamy white; abdomen lighter; flanks and under tail-coverts ashy, slightly tinged with pinkish, some of the feathers with dark black shaft-stripes, others with small terminal spots of black; under surface of tail much like coverts, the black markings of upper surface showing only faintly; shafts of tail-feathers creamy white; under wing-coverts fulvous-brown, tipped with white; axillars white. Eyes pale yellow; legs, feet, and nails nearly white; upper mandible brown, lower dirty green. Culmen, 27; wing, 139; tail, 105; tarsus, 15.

"Food, beetles. Native name 'cow-cow.' The single specimen obtained is a fully adult male; its rich and complicated markings are very difficult to describe. We have named it in honor of Mr. Menage." (*Bourns and Worcester.*)

Female.—"Head and hind neck a fine mixture of black and fulvous, the feathers terminally barred with broader bands of these tints, producing a spotted appearance; an indistinct buff band from the forehead over the eye; elongated auriculars fulvous, banded and tipped with black; nuchal collar banded with buff, fulvous, and black; mantle and lower back reddish brown, closely vermiculated with black and darker than the head; upper tail-coverts similar, but more coarsely vermiculated; scapulars plain cinnamon on the outer webs, vermiculated with black on the inner webs, each feather with a subapical spot of black; wing-coverts like the back; some of the feathers with conspicuous apical spots of white; primary-coverts chiefly black; primaries cinnamon, barred with dusky on the outer webs, dusky on the inner webs; secondaries cinnamon, irregularly barred and mottled with black on the outer webs, dusky in the center and on the inner webs; tertials cinnamon, vermiculated with black; tail cinnamon-rufous, with transverse bands of a dark tint, which are narrowly margined with black; chin, throat, and breast tawny, finely banded with black, the concealed portions of the feathers of the upper breast being white, subterminally and mesially banded with black; feathers of the lower breast and abdomen chiefly whitish, margined with tawny slightly vermiculated with dusky; thighs and under tail-coverts buff. Wing, 140; tail, 106; tarsus, 18; culmen, 25." (*Clarke.*)

There can be little doubt that the specimen described above is really the female of *B. menagei.* Birds of this genus are so complex in colors and so scarce in collections that it is very difficult to arrive at a satisfactory understanding of their plumages and relationships.

263. **BATRACHOSTOMUS JAVENSIS** (Horsfield).

JAVAN FROGMOUTH.

Podargus javensis HORSFIELD, Trans. Linn. Soc. (1821), **13**, pt. 1, 141.
Batrachostomus javensis HARTERT, Cat. Birds Brit. Mus. (1892), **16**, 640; SHARPE, Hand-List (1900), **2**, 43; MCGREGOR and WORCESTER, Hand-List (1906), 51.

Palawan (*Whitehead, Everett, Steere Exp.*). Borneo, Java, and Sumatra.

"*Rufous phase.*—Deep reddish brown, with numerous fine black vermiculations; an indistinct white band across the neck, and large white spots on the scapulars; under surface deep reddish brown below, with a broad pure white band across the upper breast, the feathers of this part being white with dark terminal cross-bars, one distinct and one generally obsolete, the bases being dark. Many feathers of the breast have very large central spots of white, margined with a black line; abdomen mingled with blackish, brownish, and a good deal of isabelline.

"*Brown phase.*—Above dark brown, with many pale bars and vermiculations; a broad distinct band of whitish across the hind neck and much white on the scapulars; a good deal of creamy white on the lower surface.

"*Blackish phase.*—Several specimens from Borneo are black or blackish in color, the vermiculations white or whitish.

"The reddish specimens are probably females, the brown and the black ones being probably males in different phases or perhaps representing different ages.

"The size of all is about the same, the total length being about 229 to 254; wing, 135; tail, 132; tarsus, 14; culmen, 20; width of gape, 33 to 35.

"The specimens described above are all from Borneo. Two females in the British Museum from Sumatra, in reddish plumage, are lighter than those from Borneo, being rather of a cinnamon-rufous color. The patches on the lower throat are cream-colored, with a cinnamon-rufous border and a blackish subterminal bar, but without any further blackish bars.

"These differences, however, seem to me not constant after comparing the material in the Leyden Museum; nevertheless, I have not yet heard of any blackish specimens from Sumatra, and it must therefore be left open to question at present whether it is possible to separate the Sumatran and Bornean specimens specifically or subspecifically." (*Hartert.*)

264. **BATRACHOSTOMUS AFFINIS** Blyth.

ALLIED FROGMOUTH.

Batrachostomus affinis BLYTH, Jour. As. Soc. Bengal (1847), 1180; TWEEDDALE, Proc. Zool. Soc. (1877), 426, pl. 45; HARTERT, Cat. Birds Brit. Mus. (1892), **16**, 643; EVERETT, Ibis (1895), 38; SHARPE, Hand-List (1900), **2**, 43; MCGREGOR and WORCESTER, Hand-List (1906), 51.

Palawan (*Everett*, *White*). Malay Peninsula, southern Tenasserim, Borneo, Sumatra.

Adult.—In plumage somewhat similar to *B. javensis*, but of smaller size. Hartert gives the measurements of the male as follows: "Length, about 216; wing, 114; tarsus, 13; width of gape, 25 to 30; culmen, 18 to 20."

Female.—A specimen recently collected in Palawan by White resembles the brown phase of *B. javensis* as described under that species. The specimen was taken near Iwahig on July 10, 1908, with its nest and two small nestlings. The adult bird measures: Wing, 115; tail, 113; culmen from base, 20; width of gape, 33; tarsus, 15.

Suborder CORACLÆ.

Family **CORACIIDÆ**.

Bill broad and slightly depressed; twelve tail-feathers; pectination of middle claw not comb-like; plumage not mottled, colors gaudy.

Subfamily CORACIINÆ.

Genus EURYSTOMUS Vieillot, 1816.

Bill short and broad; width of gape about equal to culmen; no rictal bristles and the bristles about bill very short; tail square.

265. **EURYSTOMUS ORIENTALIS** (Linnæus).

BROAD-BILLED ROLLER.

Coracias orientalis LINNÆUS, Syst. Nat. ed. 12 (1766), **1**, 159.

Eurystomus orientalis HUME, Oates ed., N. & E. Ind. Birds (1890), **3**, 57; SHARPE, Cat. Birds Brit. Mus. (1892), **17**, 33, pl. 2, fig. 1; Hand-List (1900), **2**, 47; BLANFORD, Fauna Brit. Ind. Bds. (1895), **3**, 107, fig. 30 (head); MCGREGOR and WORCESTER, Hand-List (1906), 51.

Lo-ro in'-chie, Manila; *lan-gac*, Cagayancillo; *ta-ga-tae*, Calayan; *Sa-lac-sá-can*, Ticao.

Bantayan (*McGregor*); Basilan (*Everett, Steere Exp., Bourns & Worcester, McGregor*); Bohol (*McGregor*); Cagayancillo (*McGregor*); Calamianes (*Bourns & Worcester*); Calayan (*McGregor*); Camiguin N. (*McGregor*); Cebu (*Everett, Bourns & Worcester*); Cuyo (*Meyer*); Dinagat (*Everett*); Fuga (*McGregor*); Guimaras (*Meyer, Steere Exp., Bourns & Worcester*); Leyte (*Steere Exp., Everett, Whitehead*); Libagao (*Porter*); Luzon (*Meyer, Everett, Steere Exp., Bourns & Worcester, Whitehead, McGregor*); Maestre de Campo (*McGregor & Worcester*); Marinduque (*Steere Exp.*); Masbate (*Steere Exp., McGregor*); Mindanao (*Steere, Murray, Everett, Koch & Schadenberg, Steere Exp., Goodfellow, Celestino*), Mindoro (*Steere Exp., Schmacker, Everett, Bourns & Worcester, McGregor, Porter*); Negros (*Steere, Layard, Everett, Steere Exp., Whitehead, Keay*); Palawan (*Everett, Platen, Whitehead, Bourns & Worcester, White*); Panaon (*Everett*); Panay (*Steere Exp., Bourns & Worcester*); Romblon (*Bourns & Worcester*); Samar (*Steere Exp., Bourns & Worcester, Whitehead*); Sibutu (*Everett*); Sibuyan (*Bourns & Worcester*); Siquijor (*Steere Exp., Bourns & Worcester*); Sulu (*Guillemard, Bourns & Worcester*); Tablas (*Bourns & Worcester*); Tawi Tawi (*Bourns & Worcester*); Ticao (*McGregor*); Verde (*McGregor*). Malay Peninsula, Burmese provinces, Cachar, Borneo, Java, Sumatra, Andamans, and Nicobars.

Adult.—Forehead, crown, and sides of face black becoming dark brown on occiput, neck, ear-coverts, and sides of neck; back, rump, tail-coverts, scapulars, inner secondaries, and secondary-coverts brown, washed with dull oily green; chin black with a small white spot in the center; throat deep purplish blue with bright blue mesial streaks; remainder of under parts greenish blue, becoming more intense on crissum; primaries, outer secondaries, and rectrices glossy black, marked more or less on both webs with deep purplish blue; a wide band of light blue across middle of primaries; alula and primary-coverts black, edged with deep purplish blue. Bill and legs bright red; nails and tip of bill black. Length of a male, 280; wing, 180; tail, 96; culmen from base, 33; tarsus, 17. Length of a female, 266; wing, 190; tail, 104; culmen from base, 34; middle toe with claw, 29.

"*Young.*—Differs from the adult in being duller in color and in having a black bill, and in wanting the bright blue patch on the throat, which is greenish, a little duller than the abdomen." (*Sharpe.*)

"Sixteen specimens measure as follows: Length, 352; wing, 181; tail, 109; culmen, 24; tarsus, 17; middle toe with claw, 26. Usually seen perching on some dead limb from which it flies in persuit of insects, soon returning to its perch. Often seen flying about actively just after dark, like a night hawk." (*Bourns and Worcester MS.*)

This roller is easily identified by its gaudy plumage, bright red bill, and peculiar jerky flight; there is no other Philippine species resembling it.

Suborder HALCYONES.

Family **ALCEDINIDÆ.**

Bill long, strong, and pointed, never hooked; culmen rounded or slightly flattened, straight or nearly so; nostrils small, reached by frontal feathers; wings and tail moderate, the latter slightly rounded; tarsus short; feet weak; front toes more or less united. The two subfamilies will not be considered here as their differences are very slight.

Genera.

a^1. Tail longer than culmen.
  b^1. Bill compressed; culmen flattened; a groove on each side from nostril parallel to culmen; length of bird, 350 mm. or more .... **Pelargopsis** (p. 303)
  b^2. Bill little if at all compressed; culmen rounded; groove parallel to culmen shallow or absent; length of bird, 300 mm. or less .... **Halcyon** (p. 318)
a^2. Tail shorter than culmen.
  b^1. Toes four .... **Alcedo** (p. 305)
  b^2. Toes three; forest inhabiting.
    c^1. Bill more slender and more compressed; the species usually found near streams .... **Alcyone** (p. 308)
    c^2. Bill stouter and less compressed; the species usually found away from water in forest or in thickets .... **Ceyx** (p. 311)

Genus PELARGOPSIS Gloger, 1842.

Large, length 300 mm. or more; bill bright red, very large and strong; culmen flattened and perfectly straight; a well-marked groove on each side of bill from nostril to near tip of bill, back and rump pale blue, lower parts buff, tail much longer than bill.

Species.

a^1. Back and wings deep ultramarine blue; lower back rich cobalt. **javana** (p. 303)
a^2. Back and wings bluish green; lower back greenish cobalt.
  b^1. Head, neck, and under parts rich deep ocherous .... **gouldi** (p. 304)
  b^2. Head whitish: hind neck and under parts pale ocherous-buff. **gigantea** (p. 305)

266. **PELARGOPSIS JAVANA** (Boddaert).

BORNEAN STORK-BILLED KINGFISHER.

Alecdo javana Boddaert, Tabl. Pl. Enl. (1783), 47.

Pelargopsis leucoecphala Steere, List Bds. & Mams. Steere Exped. (1890), 9; Sharpe, Cat. Birds Brit. Mus. (1892), **17**, 98; Hand-List (1900), **2**, 48; McGregor and Worcester, Hand-List (1906), 51.

Mindoro (*Steere Exp.*); Palawan (*Whitehead, Steere Exp.*). Borneo.

"*Adult male.*—Head and back of neck deep ochraceous, the latter rather deeper in color; upper part of the back, scapulars, and lesser wing-coverts rich blue; the median and greater coverts and the outer aspect of the primaries rich ultramarine, inner secondaries entirely of this color; tail ultramarine above, black beneath; under surface of body deep rich ochraceous, a little lighter on throat and sides of face. 'Bill and feet coral-red; iris chocolate.' (*Everett.*) Length, 330; culmen, 76; wing, 147; tail, 84; tarsus, 11." (*Sharpe.*)

"Included in this list chiefly on the authority of Dr. Sharpe, who identifies a bird collected by Dr. Steere as *P. leucocephala* (=*javana*). Mr. Whitehead speaks of 'two specimens' secured by himself, and refers to the fact that the bird was discovered by Dr. Steere in the Island. It is our opinion that the Mindoro bird is *P. gouldi*, and we doubt the correctness of Dr. Steere's identification of the bird collected by the Steere Expedition in Palawan. It might well happen that an occasional specimen of *P. javana* should find its way into Palawan, but there is little doubt that *P. gouldi* is the common species there." (*Bourns and Worcester MS.*)

267. **PELARGOPSIS GOULDI** Sharpe.

GOULD'S STORK-BILLED KINGFISHER.

Pelargopsis gouldi SHARPE, Ibis (1870), 63; Cat. Birds Brit. Mus. (1892), **17**, 100; Hand-List (1900), **2**, 49; GRANT, Ibis (1896), 470; MCGREGOR, Bur. Govt. Labs. (1905), **34**, 12, pl. 9 (nest); MCGREGOR and WORCESTER, Hand-List (1906), 52.

Balabac (*Everett*); Calamianes (*Bourns & Worcester, McGregor*); Lubang (*McGregor*); Luzon (*Cuming*); Mindoro (*Steere Exp., Schmacker, Bourns & Worcester, Whitehead, McGregor, Porter*); Palawan (*Lempriere, Whitehead, Platen, Steere Exp., White*).

"*Adult* (*type of species*).—Entire head and neck, as well as the whole of the under surface of the body, rich ochraceous; upper part of back, scapulars, wing-coverts, upper tail-coverts, and tail bluish green; quills and tail-feathers rather more blue; entire back and rump silvery cobalt. Length, 330; culmen, 81; wing, 152; tail, 89; tarsus, 13." (*Sharpe.*)

Iris dark brown; bill and legs bright scarlet; nails dark brown; eyelids scarlet. A male from Mindoro is 343 in length; wing, 143; tail, 89; culmen, 85; tarsus, 15.

Individuals of this species are often found near the seashore where they feed on small crabs; at other times they are fairly common in mangrove swamps. A nest found in Mindoro on April 18, 1905, was excavated in a deserted termites nest which was fastened to a tree at about 9 meters from the ground. The three incubated eggs were glossy white and measured 37.8 by 27.6; 39.8 by 28.9 and 39.6 by 28.9.

"In Volume XVII of the Catalogue of Birds, *P. gouldi* is recorded from Panay, the specimen having been collected by the Challenger expedition. This specimen seems to have been identified with some doubt as *P. gigantea* by Lord Walden, Proceedings of the Zoological Society (1877), 536. It would seem altogether probable that this identification was correct, as *P. gigantea* has since been repeatedly found in the central Philippines." (*Bourns and Worcester MS.*)

268. **PELARGOPSIS GIGANTEA** Walden.

PHILIPPINE STORK-BILLED KINGFISHER.

Pelargopsis gigantea WALDEN, Ann. & Mag. Nat. Hist. (1874), (4), **13**, 123; SHARPE, Cat. Birds Brit. Mus. (1892), **17**, 100; Hand-List (1900), **2**, 49; MCGREGOR and WORCESTER, Hand-List (1906), 52.

Ba-rí-ta, Ticao.

Basilan (*Everett, Steere Exp., Bourns & Worcester, McGregor*); Bohol (*McGregor*); Bongao (*Everett*); Cebu (*Bourns & Worcester, McGregor*); Dinagat (*Everett*); Guimaras (*Steere Exp.*); Lapac (*Guillemard*); Leyte (*Everett*); Masbate (*Steere Exp., Bourns & Worcester, McGregor*); Mindanao (*Murray, Steere, Everett, Koch & Schadenberg, Steere Exp., Goodfellow, Celestino*); Malanipa (*Murray*); Negros (*Bourns & Worcester, Keay*); Panay (*Murray, Bourns & Worcester*); Salok (*Meyer*); Samal (*Goodfellow*); Samar (*Steere Exp., Bourns & Worcester, Whitehead*); Sibutu (*Everett*); Sibuyan (*Bourns & Worcester*); Sulu (*Burbidge, Bourns & Worcester*); Tablas (*Bourns & Worcester*); Tawi Tawi (*Bourns & Worcester*); Ticao (*McGregor*).

Adult male.—Back, rump, wings, and tail as in *P. gouldi*, but head, neck, and entire under parts very much lighter in color, being pale ochraceous-buff. Wing, 155; tail, 92; culmen from base, 82; bill from nostril, 69.

Adult female.—Similar to the male. Bill bright scarlet, blackish at tip; iris brown; eyelids and legs scarlet; nails dark horn-brown. A specimen from Ticao measures: Length, 370; wing, 159; tail, 93; culmen, 88; tarsus, 18.

Immature.—Differs from the adult in having buff of lower parts darker and the breast-feathers narrowly edged with dark brown forming crescentic marks. The bill and legs are much duller than those of the adult.

"Abundant along the seashore and the banks of large fresh-water streams in the islands indicated. *P. gigantea* is a very tough bird, and will carry off a pretty good-sized load of shot. Ten specimens measure 379 in length; wing, 153; tail, 93; culmen, 83; tarsus, 16; middle toe with claw, 35. Iris dark brown; feet red to dark red; bill dirty red to dark red." (*Bourns and Worcester MS.*)

Genus ALCEDO Linnæus, 1758.

Small, length less than 200 mm.; bill long; culmen slightly curved and rounded, not flattened, a slight groove on each side; tail shorter than bill; toes four.

Species.

a^1. Wings dirty green; back, rump, and upper tail-coverts greenish cobalt; head and wing-coverts spotted with greenish blue.................... **bengalensis** (p. 306)

a^2. Wings black; back, rump, and upper tail-coverts cobalt-blue; head and wing-coverts spotted with purplish blue.. **meninting** (p. 307)

269. ALCEDO BENGALENSIS Gmelin.

ASIATIC KINGFISHER.

Alcedo bengalensis GMELIN, Syst. Nat. (1788), **1**, 450; MCGREGOR and WORCESTER, Hand-List (1906), 52.

Alcedo ispida SHARPE, Cat. Birds Brit. Mus. (1892), **17**, 141 (part); Hand-List (1900), **2**, 50 (part); BLANFORD, Fauna Brit. Ind. Bds. (1895), **3**, 122, fig. 35 (head); OATES and REID, Cat. Birds' Eggs (1903), **3**, 33 (part).

Su-sul'-bot, Manila; *ma-min-dí-ta*, Calayan; *sa-cal'*, Lubang.

Balabac (*Steere Exp., Everett*); Basilan (*Steere Exp., Bourns & Worcester*); Bantayan (*McGregor*); Batan (*McGregor*); Bohol (*Everett, McGregor*); Cagayancillo (*McGregor*); Cagayan Sulu (*McGregor*); Calamianes (*Bourns & Worcester, McGregor*); Calayan (*McGregor*); Catanduanes (*Whitehead*); Cebu (*Everett, Bourns & Worcester, McGregor*); Cuyo (*McGregor*); Guimaras (*Steere Exp., Bourns & Worcester*); Leyte (*Everett*); Lubang (*McGregor*); Luzon (*Cuming, Meyer, Everett, Bourns & Worcester, Whitehead, McGregor*); Masbate (*Steere Exp., Bourns & Worcester*); Mindanao (*Steere, Everett, Steere Exp., Celestino, Goodfellow*); Mindoro (*Schmacker, Bourns & Worcester, McGregor, Porter*); Negros (*Steere, Steere Exp., Bourns & Worcester, Keay*); Palawan (*Lempriere, Platen, Whitehead, Steere Exp., Bourns & Worcester, White*); Panay (*Bourns & Worcester*); Romblon (*Bourns & Worcester*); Samar (*Steere Exp., Bourns & Worcester*); Sibuyan (*Bourns & Worcester*); Siquijor (*Bourns & Worcester, Celestino*); Sulu (*Guillemard, Bourns & Worcester*); Tablas (*Bourns & Worcester*); Tawi Tawi (*Bourns & Worcester*); Verde (*McGregor*). Malay and Indian Peninsulas, Burmese provinces, Moluccas and Greater Sunda Islands, China, Hainan.

Adult male.—Upper parts, including wings, dark greenish blue; back, rump, and tail-coverts light cobalt-blue; feathers of head banded with cobalt; median wing-coverts tipped with cobalt; lores and a band to ear-coverts deep ferruginous, followed by a white patch on side of neck; a wide band from lower mandible to below white patch, greenish blue, spotted with cobalt; lower parts deep ferruginous or orange-rufous but chin and throat buffy white; under wing-coverts and axillars similar to breast but slightly paler. Bill black, dusky red along base; feet bright red; nails dark brown; iris dark brown. A male from Mindoro measures: Length, 168; wing, 71; tail, 32; culmen from base, 39; tarsus, 9.

Adult female.—Similar to the male. A specimen from Mindoro measures: Length, 170; wing, 75; tail, 34; culmen from base, 40; tarsus, 9.

Young.—Similar to the adult but duller; lower parts with little or no ferruginous; throat and chin white; breast and abdomen ashy or dusky brown.

"Probably occurs abundantly on every island of the group. Found along the seashore, in mangrove swamps, and along banks of fresh-water streams in the open. Much less commonly met with along streams in the forest." (*Bourns and Worcester MS.*)

270. **ALCEDO MENINTING** Horsfield.

MALAYAN KINGFISHER.

Alcedo meninting HORSFIELD, Trans. Linn. Soc. (1821), **13**, pt. 1, 172; SHARPE, Cat. Birds Brit. Mus. (1892), **17**, 157; Hand-List (1900), **2**, 51; OATES and REID, Cat. Birds' Eggs (1903), **3**, 33; MCGREGOR and WORCESTER, Hand-List (1906), 52.

Balabac (*Everett*); Bongao (*Everett*); Calamianes (*Bourns & Worcester*); Palawan (*Platen, Whitehead, Bourns & Worcester, White*); Sulu (*Guillemard*); Tawi Tawi (*Bourns & Worcester, Everett*). Sumatra, Malay Peninsula, southern Tenasserim, Java, Borneo.

"*Adult male* (*type of species*).—Above rich purplish blue; the entire back brilliant cobalt, changing to deeper blue on the lower rump and upper tail-coverts; wing-coverts black, washed with purplish blue, with a small spot of brighter blue near the end of each feather; quills black, secondaries externally purplish blue like the scapulars; tail black, washed with purplish blue; crown black, barred with purplish blue rather brighter than the shade of the back; hind neck beautiful purplish blue, with the black cross-bars more or less obsolete; lores blackish, with a rufous supraloral streak; sides of face, ear-coverts, and cheeks purplish blue like the crown, the feathers mottled with black bases; behind the ear-coverts a broad band of white, tinged with ochreous-buff; throat white with a rufous wash; rest of under surface of body from the lower throat downwards chestnut-rufous, with a patch of purplish blue, lilac-tinged feathers on each side of the upper breast; under wing-coverts chestnut-rufous, a little paler than the breast. 'Bill blackish brown; feet coral-red; iris brown.' (*Everett.*) Length, 135; culmen, 42; wing, 65; tail, 27; tarsus, 9.

"*Adult female.*—Exactly resembles the male in color, and has even the cheeks blue like the male. It appears, however, always to have the bill more or less red, and generally the greater part of the lower mandible is rufous. Length, 140; culmen, 42; wing, 66; tail, 27; tarsus, 6." (*Sharpe.*)

"Found chiefly along banks of fresh-water streams in forest. More rare in mangrove swamps and never seen by us along the seashore. Iris dark brown; legs and feet deep scarlet; bill black, reddish at base of lower mandible. In a single case the bill was deep scarlet except base and culmen black. Seven birds average as follows: Length, 155; wing, 64; tail, 28; culmen, 37; tarsus, 8." (*Bourns and Worcester MS.*)

Genus ALCYONE Swainson, 1837.

The Philippine species here placed in *Alcyone* are scarcely separable generically from those of the next following genus. They feed along small forest streams wherein they differ from the members of the genus *Ceyx* which are always found away from water in forest or in thickets.

Species.

a^1. Back and upper tail-coverts cobalt-blue; head spotted with cobalt-blue; chin and throat orange-buff.
  b^1. Lower mandible dark red; spots on crown smaller........ **cyanopectus** (p. 308)
  b^2. Lower mandible black; spots on crown larger.................. **nigrirostris** (p. 311)
a^2. Back and upper tail-coverts black, more or less spotted with white; chin and throat white.
  b^1. Breast and sides dark greenish blue.. **argentata** (p. 309)
  b^2. Breast and sides purplish blue.. **flumenicola** (p. 310)

271. ALCYONE CYANOPECTUS (Lafresnaye).

BLUE-BREASTED KINGFISHER.

Ceyx cyanopectus LAFRESNAYE, Rev. Zool. (1840), 33; MCGREGOR, Bur. Govt. Labs. (1905), **25**, 13, pl. 10.
Ceyx cyanipectus SHARPE, Cat. Birds Brit. Mus. (1892), **17**, 185; Hand-List (1900), **2**, 53; BOURNS and WORCESTER, Ibis (1895), 404; Minnesota Acad. Nat. Sci. Occ. Papers (1894), **1**, 48.
Ceyx steerii SHARPE, Cat. Birds Brit. Mus. (1892), **17**, 187.
Alcyone cyanipectus GRANT, Ibis (1895), 112, 464; WHITEHEAD, Ibis (1899), 385.
Alcyone cyanopectus MCGREGOR and WORCESTER, Hand-List (1906), 52.

Sal-pac', Ticao and Masbate.

Luzon (*Cuming, Heriot, Möllendorff, Bourns & Worcester, Whitehead*); Marinduque (*Steere Exp.*); Masbate (*Bourns & Worcester, McGregor*); Mindoro (*Steere Exp., Bourns & Worcester, Whitehead, McGregor*); Sibuyan (*Bourns & Worcester, McGregor*); Ticao (*McGregor*).

Male.—Lores orange-chestnut; sides of face, crown, and occiput deep blue, the feathers tipped with silvery cobalt; back, rump, and tail-coverts silvery cobalt; scapulars black, widely edged with dark blue; wings black, secondaries edged with dark blue; secondary-coverts dark blue, each feather with a spot of silvery cobalt; a large spot of orange-chestnut on side of neck; throat orange-chestnut, much paler on chin; middle of abdomen and a large spot on center of breast orange-chestnut; rest of under parts deep ultramarine-blue and forming two bands across the breast; axillars and wing-lining orange-chestnut; tail dark blue. A male from Mindoro measures: Length, 145; wing, 60; tail, 23; exposed culmen, 35.

Female.—Similar to the male, but all the lower parts deep orange-chestnut except the pale throat and a single dark blue band across the breast. A female from Mindoro measures: Length, 152; wing, 61; tail, 23; exposed culmen, 35.

"We found *A. cyanopectus* abundantly in Masbate. In Sibuyan it was much more rare. It is to be found along the banks of small fresh-water streams, which it is extremely loath to leave. In Sibuyan one specimen was seen in a mangrove swamp. We never met with it away from water. Legs, feet, and nails scarlet; upper mandible black, lower red; food (in one case) fish.

"Eight males average, 138 in length; wing, 58; tail, 22; culmen, 39; tarsus, 9; middle toe with claw, 17. Seven females average, 142 in length; wing, 60; tail, 22; tarsus, 9; middle toe with claw, 17; culmen, 39." (*Bourns and Worcester MS.*)

272. **ALCYONE ARGENTATA** (Tweeddale).

SILVERY KINGFISHER.

Ceyx argentata TWEEDDALE, Ann. & Mag. Nat. Hist. (1877), **20**, (4), 533; Proc. Zool. Soc. (1878), pl. 6, 108; SHARPE, Cat. Birds Brit. Mus. (1892), **17**, 187; Hand-List (1900), **2**, 53.
Alcyone argentata MCGREGOR and WORCESTER, Hand-List (1906), 52.

Basilan (*Bourns & Worcester*); Dinagat (*Everett*); Mindanao (*Everett, Koch & Schadenberg, Steere Exp., Bourns & Worcester, Goodfellow, Celestino*).

Adult.—Sexes similar; upper parts, wings, and sides of head black; bases of loral feathers white; sides of crown from above eyes to nape with small white spots; back, rump, and upper tail-coverts white, resulting from the wide tips to the feathers; white tip of each feather preceded by a light blue bar which is more or less concealed; a large white patch on each side of neck; chin, throat, and fore breast pure white, forming a well-defined patch; thighs and middle of abdomen white; remainder of under parts black, the breast and sides of abdomen strongly washed with blue; greater secondary-coverts with white tips; edge of wing and most of wing-lining white; axillars black. "Eyes black, feet red; nails and bill black." (*Celestino.*) A male from northern Mindanao is 152 in length; wing, 64; tail, 27; culmen from base, 41; tarsus, 10. A female from the same region is 150 in length; wing, 60; tail, 22; culmen from base, 39; tarsus, 10.

In some specimens the white patch behind ear-coverts is washed with buff and some of the median secondary-coverts are tipped with pale blue. These characters are probably due to immaturity.

"We obtained four specimens in Mindanao and one in Basilan; it is extremely rare in the latter island, at least in the portion over which we collected. Like *A. cyanopectus* and *A. nigrirostris* it is invariably found along the banks of wooded streams.

"Iris very dark brown; legs and feet scarlet, much darker in some specimens than in others; nails red to black. Three males from Mindanao measure, 145 in length; wing, 59; tail, 21; culmen, 39; tarsus, 9; middle toe with claw, 15. A female from Basilan measures, 143 in length; wing, 61; tail, 28; culmen, 39; tarsus, 9; middle toe with claw, 16." (*Bourns and Worcester MS.*)

273. ALCYONE FLUMENICOLA (Steere).

STEERE'S RIVER KINGFISHER.

Ceyx flumenicola STEERE, List. Birds & Mams. Steere Exped. (1890), 10.
Ceyx fluminicola SHARPE, Cat. Birds Brit. Mus. (1892), **17**, 187; Hand-List (1900), **2**, 53.
Alcyone fluminicola MCGREGOR and WORCESTER, Hand-List (1906), 53.

Leyte (*Everett, Steere Exp., Whitehead*); Samar (*Steere Exp., Bourns & Worcester, Whitehead*).

"*Adult male.*—Similar to *C. argentata,* but differing in having the breast and sides of body black, washed with ultramarine or purplish blue. 'Bill black; legs and feet scarlet, the nails brown; iris brown.' (*Worcester.*) Length, 127; culmen, 37; wing, 61; tail, 23; tarsus, 10.

"*Adult female.*—Similar to the male in color. Length, 140; culmen, 37; wing, 58; tail, 22; tarsus, 9.

"The specimen from Leyte is more ultramarine on the breast than those from Samar, which incline to purplish blue; but Steere unites the birds from the two islands, and thus the Leyte specimen in the Museum may be immature, especially as it has the throat and abdomen tinged with buff. This last character Steere considers to be specific, but I feel sure that it is a sign of immaturity." (*Sharpe.*)

"We had scant faith in Steere's *C. flumenicola* before our return to the Philippines. But one specimen of *C. argentata* was collected by the Steere Expedition, and that was so shot to pieces that the differences between it and *C. flumenicola* were not in evidence to any great extent. The examination of a good series of specimens from Mindanao and Basilan has, however, convinced us that the Samar-Leyte birds are quite distinct.

"The blue of the under parts affords the best means of distinguishing the species, being much darker in the northern birds. The under wing-coverts in the southern birds are white; in the northern birds they are almost invariably light buff. All of our specimens from the south have pure white throats, while the northern birds usually have the white of the throat washed with buff. This last character is not of a very satisfactory nature, however, as the northern birds show a great deal of individual variation in this respect. This variation is independent of the sex; nor does it seem to be, as Dr. Sharpe thinks, a sign of immaturity, young birds in some cases having very little of the color. *C. flumenicola* is always found along the wooded banks of streams where it perches over the water.

"Iris very dark brown; legs and feet bright scarlet; nails usually blackish; bill black. Food, in one case, small crabs. Eight males measure, 136 in length; wing, 56; tail, 23; culmen, 36; tarsus, 8; middle toe with claw, 20. Five females measure, 139 in length; wing, 57; tail, 23; culmen, 34; tarsus, 9: middle toe with claw, 16." (*Bourns and Worcester MS.*)

274. **ALCYONE NIGRIROSTRIS** (Bourns and Worcester).

BLACK-BILLED KINGFISHER.

Ceyx nigrirostris Bourns and Worcester, Minnesota Acad. Nat. Sci. Occ. Papers (1894), **1**, 13; Sharpe, Hand-List (1900), **2**, 54.
Alcyone nigrirostris McGregor and Worcester, Hand-List (1906), 53.

Cebu (*Bourns & Worcester*); Negros (*Bourns & Worcester, Whitehead*); Panay (*Bourns & Worcester*).

"*Adult male.*—Back and upper tail-coverts bright cobalt-blue, slightly lighter than in *C. cyanipectus;* crown and nape blue-black, thickly spotted with bright cobalt, the spots being much wider and slightly lighter than in *C. cyanipectus;* spots much larger on hind neck, causing it to appear nearly uniform cobalt; scapulars black, heavily washed with dark verditer-blue; wing-coverts washed with verditer-blue, each feather with a bright spot or stripe of cobalt-blue; wing black, the outer webs of secondaries heavily washed with light verditer-blue; tail black, the central pair of feathers washed with verditer-blue on both webs, the others on outer webs only; loral spot reddish buff; a spot of same color on sides of neck; chin and throat white, washed with buff; fore neck, breast, and abdomen uniform buff; flanks, sides of breast, and a complete band across the breast dark verditer-blue: a half band of same color behind this; under tail-coverts buff, the larger ones tipped with verditer-blue; under wing-coverts like the breast, with a spot of verditer-blue at end; basal portion of inner webs of primaries and secondaries washed with pale buff; bill black. Averge measurements from ten males: Culmen, 36; tarsus, 9; wing, 56; tail, 22. Length of a single male measured in the flesh, 165.

"*Female* like male, but has only a half band of verditer-blue across the breast, this being more imperfect than in *C. cyanipectus.* Average measurements from three females: Culmen, 37; tarsus, 8; wing, 59; tail, 24. Length of single female measured in the flesh, 143.

"A well-marked species easily distinguished from *C. cyanipectus,* its nearest ally, by the heavy markings on crown and nape, by its black bill and by the entirely different color of its under surface. Like the former species, it is strictly confined to the banks of fresh-water streams and it is usually found in the woods." (*Bourns and Worcester.*)

Genus CEYX Lacépède, 1799.

Bill intermediate in form between *Alcedo* and *Halcyon,* less compressed than in the former, not grooved; culmen straight and slightly flattened; only three toes, the inner or second toe wanting; tail very short and rounded; plumage very bright, red often predominating. (*Blanford.*)

Species.

a^1. Lower parts lilac and rufous.
  b^1. Smaller; wing and tail shorter.
    c^1. A bright blue spot behind ear-coverts .... **melanura** (p. 312)
    c^2. No bright blue spot behind ear-coverts .... **mindanensis** (p. 312)
  b^2. Larger; wing and tail longer .... **samarensis** (p. 313)
a^2. Lower parts yellow, or yellow washed with rufous.
  b^1. Above rufous, or black and rufous, washed with more or less lilac. **euerythra** (p. 314)
  b^2. Above silvery cobalt to deep ultramarine-blue but with no rufous .... { **bournsi** (p. 316) / **goodfellowi** (p. 318) }

275. CEYX MELANURA Kaup.

KAUP'S KINGFISHER.

Ceyx melanura KAUP, Fauna Eisv. (1848), 15; SHARPE, Cat. Birds Brit. Mus. (1892), **17**, 180 (part); Hand-List (1900), **2**, 53; BOURNS and WORCESTER, Minnesota Acad. Nat. Sci. Occ. Papers (1894), **1**, 46; McGREGOR and WORCESTER, Hand-List (1906), 53.

Luzon (*Heriot, Möllendorff, Steere Exp., Whitehead*).

"*Adult.*—Above lilac-rufous, washed with lilac; edge of wing rufous; scapulars rufous like the back, with a broad band of black on each side of mantle; wing-coverts black, spotted minutely with bright blue; alula, primary-coverts, and quills black; tail-feathers rufous like the back, the lateral ones blackish; crown lilac-rufous, with faint but distinct spots of brighter lilac; lores pale orange; eyelid and a mark in front of eye blackish; sides of face, ear-coverts, and cheeks lilac-rufous, succeeded by a band of white on the sides of the neck, above which is a spot of bright blue; throat white; fore neck, breast, sides of body, and flanks bright lilac-rufous; abdomen white; thighs and under tail-coverts rufous, as well as the under wing-coverts and axillars and the inner edge of the quills. Length, 127; culmen, 30; wing, 53; tail, 18; tarsus, 9.

"*Young.*—Exactly similar to the adults, but with a shorter and paler bill, the latter being horny whitish." (*Sharpe.*)

276. CEYX MINDANENSIS Steere.

MINDANAO KINGFISHER.

Ceyx mindanensis STEERE, List Birds & Mams. Steere Exped. (1890), 10; SHARPE, Cat. Birds Brit. Mus. (1892), **17**, 181 (foot note); Hand-List (1900), **2**, 53; BOURNS and WORCESTER, Minnesota Acad. Nat. Sci. Occ. Papers (1894), **1**, 47; McGREGOR and WORCESTER, Hand-List (1906), 53.

Ceyx basilanica STEERE, List Birds & Mams. Steere Exped. (1890), 10.

Ceyx platenæ BLASIUS, Jour. für Orn. (1890), 141.

Basilan (*Steere Exp., Bourns & Worcester*); Mindanao (*Steere, Steere Exp., Platen, Bourns & Worcester, Goodfellow*).

"Above rufous; head, cheeks, and back thickly spotted with bright lilac; wings black, secondaries edged with rufous; coverts black, broadly tipped with rufous, these rufous tips carrying faint lilac spots; breast rufous washed with bright lilac." (*Steere.*)

"With a very large series of specimens from Mindanao and Basilan at our disposal we are unable to detect the slightest difference between the birds from the two islands and we therefore unite them under the name *C. mindanensis,* as the Mindanao birds were obtained and described first. Frequents forest or low second growth away from water." (*Bourns and Worcester.*)

"Since Steere has attempted to separate the Mindanao and Basilan birds, we give measurements from all our specimens:

"Eight males from Basilan measure, 134 in length; wing, 58; tail, 21; culmen, 36; tarsus, 9; middle toe with claw, 16.

"Eighteen females from the same place measure, 135 in length; wing, 58; tail, 22; culmen, 39; tarsus, 9; middle toe with claw, 14.

"Four males from Mindanao measure, length, 135; wing, 58; tail, 22; culmen, 39; tarsus, 8; middle toe with claw, 15.

"Two females from same island measure, 143 in length; wing, 59; tail, 23; culmen, 39; tarsus, 9; middle toe with claw, 16.

"Iris very dark brown; bill, legs, feet, and nails scarlet to orange-red. Usually keeps near ground. Occasionally alights 5 to 10 meters above ground. Food, insects and their larvæ." (*Bourns and Worcester MS.*)

277. CEYX SAMARENSIS Steere.

SAMAR KINGFISHER.

Ceyx samarensis STEERE, List Birds & Mams. Steere Exped. (1890), 10; GRANT, Ibis (1897), 243; SHARPE, Hand-List (1900), 2, 53; MCGREGOR and WORCESTER, Hand-List (1906), 53.

Ceyx melanura SHARPE, Cat. Birds Brit. Mus. (1892), 17, 180 (part).

Leyte (*Steere Exp.*); Samar (*Steere Exp., Bourns & Worcester, Whitehead*).

"Upper surface deep rufous; interscapulars forming two broad black bands; wings black, coverts black and spotted with cobalt; sides of the head rich lilac; breast and upper abdomen lilac, fainter behind. Length, 147; tail, 30; bill, 30; wing, 66; middle toe with claw, 15. Differs from true *C. melanura* of Luzon in its larger size, in coloring of cheeks and breast, and in amount of coloring on the lower surface." (*Steere.*)

"We obtained a fine series of specimens in Samar which agree in every detail with the description of *C. melanura.* The specimens secured by us were found among the hills in deep forest and invariably away from water." (*Bourns and Worcester.*)

278. CEYX EUERYTHRA Sharpe.

RED-BACKED KINGFISHER.

Ceyx euerythra SHARPE, Cat. Birds Brit. Mus. (1892), **17**, 179; Hand-List (1900), **2**, 53; BOURNS and WORCESTER, Minnesota Acad. Nat. Sci. Occ. Papers (1894), **1**, 45; MCGREGOR and WORCESTER, Hand-List (1906), 53.

Balabac (*Everett*); Bongao (*Everett*); Calamianes (*Bourns & Worcester*); Mindoro (*Bourns & Worcester, Schmacker, McGregor*); Palawan (*Lempriere, Platen, Steere Exp., Whitehead, Bourns & Worcester, Celestino, White*); Tawi Tawi (*Bourns & Worcester, Everett*). Malay Peninsula, Sumatra, Borneo.

Adult.—Above red, washed with lilac, heaviest on head and rump; below deep yellow, strongest across the breast; chin and upper throat white, washed with yellow; wing-coverts like the back; primaries and secondaries black; first primary and the secondaries edged with rufous; wing-lining yellow. "Iris dark brown; bill and feet red." (*Celestino.*) Male, length, 140; wing, 58; tail, 23; culmen from base, 40. Female, length, 140; wing, 58; tail, 24; culmen from base, 40.

"We have fourteen specimens from Tawi Tawi, Palawan, and the Calamianes Islands and they show some interesting plumage changes which were for some time a puzzle to us.

"An adult pair in high plumage from the Calamianes have entire upper surface of body red, washed with lilac, most heavily on head and rump. Wing-coverts and scapulars like back. Secondaries rufous with broad black shaft-stripes. Primaries black, the first rufous for entire length of outer web and most of the others showing a small amount of rufous at their tips. Under surface of primaries washed with rufous on inner webs. Chin and throat white faintly tinged with lemon-yellow. Remainder of under surface deep golden-yellow, darkest on sides of breast and flanks. A yellowish white patch behind ear. Under tail-coverts golden yellow, tipped with rufous. Tail uniform bright rufous above and below. Under wing-coverts and axillars golden yellow. Bend of wing rufous.

"This plumage we take to be typical for fully adult birds in fine feather. Two females from Palawan agree with this description except that in one the secondaries show rufous only on under surface of inner webs, and that the primaries show no rufous except on basal half of outer web of first. The under wing-coverts, axillars, and bend of wing are light rufous instead of yellow.

"Sharpe, Ibis (1894), 246, reports an adult male of this species from Bongao and a female from Tawi Tawi. We note certain differences shown by our Tawi Tawi specimens, of which we have twelve. Of these four agree with the Calamianes birds except that the scapulars show more or less black at their bases and that the secondaries show more of black. Among the remaining specimens, however, there are some curious variations.

"First it is to be noted that in three fully adult birds beginning to molt the under surface is pale dirty yellowish, the throat white.

"In two of the birds a few scattered yellow feathers are appearing in the white of the throat. This then is the worn-out plumage of old birds.

"A male with rich yellow under surface and white throat has some of the scapulars entirely black, tipped with blue, the remainder being tipped with lilac. Some of the wing-coverts are black, tipped with blue. No rufous on primaries except on outer web of first.

"Another bird has chin and throat pure white, the breast mottled with golden yellow and light cinnamon-rufous. Feathers of abdomen nearly white, tips washed with rufous. Under wing-coverts and axillars cinnamon-rufous. A little more black in the scapulars than the preceding. Tail with broad black shaft-stripes on apical half of under surface of feathers.

"Another specimen has chin and throat pure white. Sides of face, breast, flanks, under wing-coverts, and axillars cinnamon-rufous, deepest on the breast. Abdomen nearly white. A few golden-yellow feathers appearing on breast, flanks, and abdomen. Scapulars, except a few of the smallest, black quite broadly tipped with blue; tail with tips of all its feathers black.

"Finally, a single specimen has under surface as in preceding except that yellow feathers have not begun to appear. Scapulars and inner third of inner secondaries black, the former tipped with blue, the latter with rufous washed with lilac. Tail with apical two-thirds of feathers black washed with rufous on edges of webs. The bill of this last bird shows signs of immaturity, being blackish toward the tip instead of clear scarlet.

"We were at first greatly puzzled by these birds, as the black scapulars with their blue tips form a striking marking and with a single exception the bills of our specimens showed no sign of immaturity. After carefully examining the whole series, however, we are convinced that the cinnamon-rufous under surface, tail-feathers tipped with black, and black scapulars tipped with blue are themselves signs of immaturity, the black gradually disappearing with age, and yellow feathers appearing on the outer surface until the plumage first described by us is reached. This finally becomes worn and soiled giving the dirty yellowish under plumage already noted. Our Tawi Tawi birds were shot late in October and early in November, Palawan birds in December, and Calamianes birds in January and February." (*Bourns and Worcester.*)

"Usually found along the banks of fresh-water streams in the forest, not, however, strictly confined to banks of streams, but sometimes met with in the woods away from water.

"Iris very dark brown; bill, legs, and feet scarlet. Food shrimps and insects, in one case small lizard and crabs. Eighteen specimens average as follows: Length, 140; wing, 58; tail, 24; culmen, 37; tarsus, 8; middle toe with claw, 16." (*Bourns and Worcester MS.*)

279. **CEYX BOURNSI** Steere.

BOURNS'S KINGFISHER.

Ceyx bournsi STEERE, List Birds & Mams. Steere Exped. (July, 1890), 10; SHARPE, Cat. Birds Brit. Mus. (1892), **17**, 185; Hand-List (1900), **2**, 53; BOURNS and WORCESTER, Minnesota Acad. Nat. Sci. Occ. Papers (1894), **1**, 47; MCGREGOR and WORCESTER, Hand-List (1906), 53.

Ceyx malamaui STEERE, List Birds & Mams. Steere Exped. (1890), 10; SHARPE, Cat. Birds Brit. Mus. (1892), **17**, 184.

Ceyx sulucnsis BLASIUS, Jour. für Orn. (August, 1890), 141.

Ceyx margarethæ BLASIUS, Jour. für Orn. (August, 1890), 141.

Banton (*Celestino*); Basilan (*Steere Exp., Bourns & Worcester, McGregor*); Bongao (*Everett*); Cebu (*Bourns & Worcester, McGregor*); Mindanao (*Steere Exp., Platen, Bourns & Worcester*); Negros (*Bourns & Worcester*); Romblon (*Bourns & Worcester*); Sibuyan (*Bourns & Worcester, McGregor*); Siquijor (*Bourns & Worcester*); Sulu (*Platen, Bourns & Worcester*); Tablas (*Bourns & Worcester*); Tawi Tawi (*Bourns & Worcester, Everett*).

Adult (*sexes similar*).—Above, sides of head and neck, and wings ultramarine to silvery cobalt-blue; having a more or less spotted appearance on head; lores and under parts orange-rufous, but chin, throat, and middle of abdomen white or with a pale yellow wash; alula, primaries, and primary-coverts black; edge of wing and outer web of first alula-quill and of first primary rufous; tail blue, darker than back and coverts. In a male from Banton the wing is 68; tail, 26; culmen from base, 39; tarsus, 10.

"*Young.*—Similar to the adult, but less brilliant and with a duller red bill; the head, scapulars, and wing-coverts black, with blue ends to the feathers; the blue of the back lighter than in the adult, and inclining to cobalt on the lower back; loral spot as large as in the adult." (*Sharpe.*)

This species exists under a number of plumages some of which have been described as separate species. Bourns and Worcester have collected a great number of specimens which show that these variations can not be specific. In part they say:

"We find that we must either multiply the number of small blue woods *Ceyces* from the Philippines indefinitely or reduce the above-mentioned species [*C. bournsi, malamaui, sulucnsis,* and *margarethæ*] to one. It would be an almost endless task to describe the different phases of plumage shown and we will only say that we have a practically unbroken series between a bird with a magnificent deep blue upper surface and a bird with a fine silvery white upper surface *which has not a blue feather on it.* In the latter specimens the white occupies exactly the position of the blue in the specimens first mentioned.

"Our series shows that these extraordinary differences of color are independent or sex, age, or locality, some young birds are very light, others very dark. In one case where parent and offspring were killed at one discharge of the gun they exhibited marked differences in color.

"The amount of blue or white is, however, dependent on age to some extent, the young birds always showing much more black on the upper surface than do adults. In the young the bill is at first black tipped with pale horn and the legs and feet are pale flesh-color.

"*Ceyx bournsi* is a strictly woods form and its shy habits doubtless explain its having been so generally missed by collectors." (*Bourns and Worcester.*)

"Found in precisely the same locality as *C. mindanensis* and in company with it in the Islands of Mindanao and Basilan. Food the same as that of *C. mindanensis.*

"When one has learned its note and habits it may be secured without great trouble. It always gives a shrill 'cheep' just before taking wing, and repeats the same note at frequent intervals during flight. It flies with great rapidity, but usually for a short distance, when it alights on some branch, stump, or stone, where it sits perfectly still. It is a bird of extremely local habits, and displays great reluctance to leave the thicket to which it is accustomed. If pursued it usually flies in a circle, soon returning to the place from which it started, continuing to follow about the same course until the hunter either shoots it or gives up the attempt. When its route has been once learned, two men can easily bring it down, one driving it while the other waits near one of its favorite resting places. In this way we secured a considerable number of our specimens. We believe that this species never 'fishes' in the streams.

"Iris dark brown; bill, legs, feet, and nails scarlet in adults, growing paler in immature birds. Very young birds have the bill black, with a whitish horn tip. Food, insects, larvæ and worms.

"Six males from Tawi Tawi measure as follows: Length, 140; wing, 64; tail, 25; culmen, 38; tarsus, 8; middle toe with claw, 16. Four females from Tawi Tawi: Length, 141; wing, 64; tail, 24; culmen, 37; tarsus, 9; middle toe with claw, 17.

"Five males from Tablas measure: Length, 146; wing, 65; tail, 25; culmen, 36; tarsus, 9; middle toe with claw, 17. Four females from Tablas: Length, 145; wing, 66; tail, 25; tarsus, 9; middle toe with claw, 22; culmen, 36.

"We have given measurements of birds taken at the extremes of the range of the species. It will be seen that the northern birds are slightly longer. As stated in our preliminary notes, the color of the dorsal surface of this bird varies from deep indigo-blue to pure silvery white, and this variation is independent of age, sex, or locality." (*Bourns and Worcester MS.*)

280. **CEYX GOODFELLOWI** Grant.

GOODFELLOW'S KINGFISHER.

Ceyx goodfellowi GRANT, Bull. Brit. Orn. Club. (1905), **16**, 17; Ibis (1906), **6**, 492.

Mindanao (*Goodfellow*).

"*Adult male.*—Most nearly allied to *C. malamaui* Steere [=*bournsi*], but the back, rump, and upper tail-coverts are of a brilliant ultramarine-blue, tinged with cobalt on the middle of the lower back and rump; the feathers of the crown and nape are also tipped with much of the same brilliant color; the wing-coverts and scapulars like those of *C. malamaui*, are of a deep purplish blue. 'Iris dark brown; bill, feet, and nails bright vermilion.' (*Goodfellow.*) Length, 127; wing, 63; tail, 22; culmen, 39; tarsus, 10." (*Grant.*)

This species, described from a single specimen, is doubtfully distinct from *Ceyx bournsi*.

Genus HALCYON Swainson, 1821.

Bill large; culmen from base less than tail, rounded not flattened; birds of medium size and various bright colors. The species here included in *Halcyon* are by some authors assigned to at least three genera but, other than their style of coloration, the genera *Sauropatis* and *Callialcyon* seem to have no tangible characters. *Halcyon hombroni*, *lindsayi*, and *moseleyi* stand apart from the other Philippine species of the genus because of their short stout bill, longer tail, and peculiar spotted plumage. The genus *Actenoides* might be used for these three species.

Species.

a^1. Scapulars and wing-coverts unspotted.
  b^1. Bill entirely red.
    c^1. Crown uniform in color with wings and tail; above dark rufous-brown washed with lilac .... **coromandus** (p. 319)
    c^2. Crown not uniform in color with wings and tail.
      d^1. Crown chestnut-rufous; lower back bright greenish blue. **gularis** (p. 320)
      d^2. Crown black; lower back ultramarine-blue .... **pileatus** (p. 321)
  b^2. Bill mostly black.
    c^1. Collar and spot in front of eye rufous-brown .... **winchelli** (p. 322)
    c^2. Collar and spot in front of eye white .... **chloris** (p. 323)
a^2. Scapulars and wing-coverts more or less spotted.
  b^1. Crown and back blue .... **hombroni** (p. 324)
  b^2. Crown and back green.
    c^1. Breast-feathers edged with green .... **lindsayi** (p. 325)
    c^2. Breast-feathers edged with black .... **moseleyi** (p. 326)

281. HALCYON COROMANDUS (Latham).

RUDDY KINGFISHER.

Alcedo coromanda LATHAM, Ind. Orn. (1790), **1**, 252.

Halcyon coromandus SHARPE, Cat. Birds Brit. Mus. (1892), **17**, 217; Hand-List (1900), **2**, 56; OATES and RIED, Cat. Birds' Eggs (1903), **3**, 37; McGREGOR and WORCESTER, Hand-List (1906), 54.

Sa-luc-sae, Calayan.

Batan (*Edmonds*); Calayan (*McGregor*); Camiguin N. (*McGregor*); Guimaras (*Steere Exp.*); Luzon (*Steere Exp., Whitehead, Bourns & Worcester*); Masbate (*Bourns & Worcester*); Mindanao (*Everett, Celestino*); Mindoro (*McGregor*); Palawan (*Whitehead, Bourns & Worcester, White*); Sibuyan (*Bourns & Worcester*); Tawi Tawi (*Bourns & Worcester*). Sangi and Liu Kiu Islands, Indo-Chinese countries, Malay Peninsula, eastern Himalayas, China, Japan, Korea, Formosa, Java, Sumatra, Borneo, Celebes.

Adult male.—Above, including wings and tail, dark rufous, heavily washed with violet; on lower back, rump, and tail-coverts a narrow stripe of silvery white, slightly washed with blue; below dark cinnamon-buff, chin whitish; throat, breast, and under tail-coverts washed with violet. Bill, legs, and nails bright coral-red; iris brown. Length of a specimen from Camiguin, 250; wing, 116; tail, 72; culmen from base, 57; tarsus, 15.

Female.—Much less violet wash on upper parts and very little or none on lower parts. Length of a specimen from Calayan, 270; wing, 119; tail, 74; culmen from base, 55; tarsus, 15.

Young.—Lower parts lighter, chin more extensively whitish, violet wash less, and feathers of throat and breast edged with blackish brown forming numerous small crescents.

"Probably ranges throughout the Philippines, but is as yet noted from but few of the islands. It is sometimes found in deep woods away from water, but more commonly along the banks of wooded streams and in mangrove swamps. It is usually shy and hard to shoot, but in Sibuyan two individuals of this species took up their abode in the bamboos in our back yard, apparently attracted by the flesh of land shells thrown out as we cleaned our specimens. In several islands where we met with this species we obtained but a single specimen.

"Bill, legs, and feet scarlet; nails bright red or orange-red; iris very dark brown. Food crabs, in four cases. Seven males measured, 258 in length; wing, 111; tail, 63; culmen, 58; tarsus, 15; middle toe with claw, 25. Four females: Length, 253; wing, 109; tail, 64; culmen, 56; tarsus, 15; middle toe with claw, 25." (*Bourns and Worcester MS.*)

282. **HALCYON GULARIS** (Kuhl).

WHITE-THROATED KINGFISHER.

Alcedo gularis Kuhl, Buffon and Daubenton, Fg. Av. Col. Nom. Syst. (1820), 4.

Halcyon gularis Sharpe, Cat. Birds Brit. Mus. (1892), **17**, 227; Hand-List (1900), **2**, 56; Oates and Reid, Cat. Birds' Eggs (1903), **3**, 38; McGregor, Bur. Govt. Labs. (1905), **34**, 13, pl. 11; McGregor and Worcester, Hand-List (1906), 54.

Til-ma-ma-noc', Manila.

Basilan (*Bourns & Worcester*); Bohol (*McGregor*); Caluya (*Porter*); Cebu (*Meyer, Everett, Steere Exp., Bourns & Worcester, McGregor*); Guimaras (*Steere Exp., Bourns & Worcester*); Leyte (*Everett*); Libagao (*Porter*); Lubang (*McGregor*); Luzon (*Everett, Steere Exp., Whitehead, Bourns & Worcester, McGregor*); Maestre de Campo (*McGregor & Worcester*); Marinduque (*Steere Exp.*); Masbate (*Steere Exp., Bourns & Worcester, McGregor*); Mindanao (*Murray, Everett, Steere Exp., Bourns & Worcester, Celestino, Goodfellow*); Mindoro (*Steere Exp., Schmacker, Bourns & Worcester, McGregor, Porter*); Negros (*Steere, Layard, Keay, Everett, Steere Exp., Bourns & Worcester, Whitehead*); Panaon (*Everett*); Panay (*Murray, Steere, Steere Exp., Bourns & Worcester*); Samar (*Steere Exp., Bourns & Worcester, Whitehead*); Sibay (*Porter*); Siquijor (*Bourns & Worcester, Celestino*); Tablas (*Bourns & Worcester*); Ticao (*McGregor*); Verde (*McGregor*).

Adult.—Entire head, neck, and sides of face deep chestnut; scapulars bright blue; back and rump more silvery cobalt-blue; a large patch on chin and upper throat pure white; remainder of under parts chestnut, a little lighter than crown; basal part of primaries blue on outer web, white on inner web; distal part black; alula and primary-coverts blue; secondary-coverts black; edge of wing and axillars chestnut; tail blue above and black below. When the specimen is held away from the light the blues become green. Iris dark brown; bill and legs bright red; nails black. A male from Bohol measures: Length, 280; wing, 124; tail, 80; culmen from base, 62; tarsus, 15. A female from Mariveles measures: Length, 286; wing, 124; tail, 83; culmen from base, 63; tarsus, 14.

"Steere states that neither this species nor *H. coromandus* nor even *H. chloris* frequents streams. We can not agree with him. All three of the species are frequently found along streams, and *H. gularis* is usually found along fresh-water streams. It sometimes feeds in dry open country, however. Several nests of this species were found by us at various times. They were invariably placed in the mud nests of white ants, and consisted of mere tunnels, without lining of any sort. The eggs are pure white and highly polished. Two eggs before us are nearly spherical, measuring 28.5 by 26.4 and 28.9 by 26.9, respectively. Six others, while nearly as broad as long, are quite abruptly pointed at the smaller end. They measure, 30.9 by 27.6; 31.4 by 28.7; 30.9 by 25.9; 32.5 by 28.9; 30.9 by 27.9.

"*H. gularis* has the legs and feet red, bill red, nails black, iris dark brown. Six males measure, 282 in length; wing, 122; tail, 81; culmen, 64; tarsus, 14; middle toe with claw, 25." (*Bourns and Worcester MS.*)

A large number of white-throated kingfishers nested in the banks of the Baco River, Mindoro, during our stay at Balete in April, 1905, while other pairs excavated holes in masses of earth held among the roots of overturned trees.

283. HALCYON PILEATUS (Boddaert).

BLACK-CAPPED KINGFISHER.

Alcedo pileata BODDAERT, Tabl. Pl. Enl. (1783), 41.

Halcyon pileatus SHARPE, Cat. Birds Brit. Mus. (1892), **17**, 229; Hand-List (1900), **2**, 57; OATES and REID, Cat. Birds' Eggs (1903), **3**, 38; MCGREGOR and WORCESTER, Hand-List (1906), 54.

Halcyon pileata BLANFORD, Fauna Brit. Ind. Bds. (1895), **3**, 132, fig. 37 (head).

Balabac (*Steere, Steere Exp., Everett*); Basilan (*Steere Exp.*); Palawan (*Whitehead, Platen, Bourns & Worcester*); Tawi Tawi (*Bourns & Worcester*). Ceylon, Malay Peninsula, southern India to Canara, Indo-Chinese countries to China and north to Korea, Java, Sumatra, Borneo, Celebes.

"*Adult male.*—General color above purplish blue on the mantle and scapulars, the center of the back and rump brighter and more purplish cobalt; upper tail-coverts and tail-feathers purplish blue, the latter blackish along the inner webs and having black shafts; wing-coverts black; alula, primary-coverts, and outer aspect of quills purplish blue, the latter blackish at the ends, and with broad white bases to the inner webs; crown, sides of face, and ear-coverts black, as well as the base of the cheeks; round the hind neck a broad white collar; cheeks and throat white, extending down the center of the breast; sides of the latter, flanks, abdomen, and under tail-coverts, under wing-coverts, and axillars rich orange-buff; quills below black, with a broad white band across the base. 'Bill deep red; mouth pale red; eyelids pinkish plumbeous, covered with white feathers, except on the edges, where they are black; feet dark red, brownish in front of the tarsus; claws dark horn-color; iris dark brown.' (*Oates.*) Length, 279; culmen, 61; wing, 127; tail, 86; tarsus, 14.

"*Adult female.*—Does not differ in color from the male. Length, 279; culmen, 61; wing, 130; tail, 76; tarsus, 13.

"*Young birds* have dusky blackish fringes to the feathers of the breast." (*Sharpe.*)

"Common in Balabac, but very rare in Tawi Tawi and Basilan. The single Tawi Tawi specimen obtained was shot in the banana trees about our house on the very day of our departure, and must have been a straggler. Bill scarlet; iris very dark brown; legs and feet dark red; nails black." (*Bourns and Worcester MS.*)

284. **HALCYON WINCHELLI** Sharpe.

WINCHELL'S KINGFISHER.

Halcyon winchelli SHARPE, Trans. Linn. Soc. (1876), 1, 318, pl. 47; Cat. Birds Brit. Mus. (1892), **17**, 255; Hand-List (1900), **2**, 58; MCGREGOR and WORCESTER, Hand-List (1906), 54.

Halcyon alfredi OUSTALET, Le Natur. (1890), 62.

Basilan (*Steere, Steere Exp., Bourns & Worcester, McGregor*); Bohol (*McGregor*); Bongao (*Everett*); Cebu (*Bourns & Worcester*); Mindanao (*Everett, Koch & Schadenberg, Goodfellow, Celestino*); Negros (*Whitehead*); Romblon (*Bourns & Worcester*); Samar (*Steere Exp.*); Sibuyan (*Bourns & Worcester*); Siquijor (*Bourns & Worcester*); Sulu (*Bourns & Worcester*); Tablas (*Bourns & Worcester*); Tawi Tawi (*Everett, Bourns & Worcester*).

Male.—Above, including wings and tail, deep blue; lores and a narrow collar on hind neck chestnut; a band of light blue extending backward from above eye and joining its fellow across nape; back, rump, and central tail-coverts light silvery blue; sides of head and a small patch on each side of breast dark blue; lower parts white; primaries and alula black, remainder of wing-feathers edged with blue; tail blue above, black below. Bill black, except under part of lower mandible which is white near base; feet greenish drab; nails black. Length of a male from Basilan, 255; wing, 103; tail, 75; culmen from base, 57; tarsus, 14.

Female.—Above similar to the male but blacker because of the greater restriction of blue on each feather; chestnut collar much wider; below white, washed to a greater or less extent with fawn, heaviest on breast, usually wanting on middle of abdomen. Length of a female from Basilan, 255; wing, 102; tail, 75; culmen from base, 54; bill from nostril, 46.

Young.—A specimen taken in Sibuyan indicates that the young male resembles the adult female.

"A deep-woods form, usually seen perching in trees at a considerable distance from the ground, though it goes to the ground to feed. On being surprised when feeding it flies up into the trees at once. This kingfisher seems to be fully possessed of the idea that it can sing, and may often be seen at early morning or dusk, perched 15 meters above the ground, and squawking away as if life depended on it.

"Familiarity with its habits and its note enabled us to procure it in many islands where it was not previously known. It is, however, a difficult bird to shoot at the best.

"Iris dark brown; legs and feet light greenish olive, sometimes yellowish olive; nails black; bill black except base of lower mandible which is usually white; tip of bill sometimes white; food, beetles, grasshoppers, spiders, and grubs.

"Eight males average, 247 in length; wing, 98; tail, 74; culmen, 51; tarsus, 13; middle toe with claw, 23. Thirteen females, length, 250; wing, 100; tail, 74; culmen, 52; tarsus, 13; middle toe with claw, 24." (*Bourns and Worcester MS.*)

285. HALCYON CHLORIS (Boddaert).

WHITE-COLLARED KINGFISHER.

Alcedo chloris Boddaert, Tabl. Pl. Enl. (1783), 49.

Halcyon chloris Sharpe, Cat. Birds Brit. Mus. (1892), **17**, 273, pl. 7, fig. 3; Hand-List (1900), **2**, 60; Oates and Reid, Cat. Birds' Eggs (1903), **3**, 41; McGregor and Worcester, Hand-List (1906), 55.

Sauropatis chloris Blanford, Fauna Brit. Ind. Bds. (1895), **3**, 135, fig. 38 (head).

Ti-ca-rol', Bohol; *ba-ca-ca*, Cagayancillo; *tac-ca-rit*, Ticao.

Bantayan (*McGregor*); Banton (*Celestino*); Basilan (*Steere, Everett, Steere Exp., Bourns & Worcester*); Batan (*McGregor*); Bohol (*Everett*); Bongao (*Everett*); Cagayancillo (*McGregor*); Cagayan Sulu (*Guillemard*); Calamianes (*Bourns & Worcester*); Caluya (*Porter*); Camiguin N. (*McGregor*); Camiguin S. (*Murray*); Catanduanes (*Whitehead*); Cebu (*Murray, Meyer, Everett, Bourns & Worcester, McGregor*); Cuyo (*McGregor*); Dinagat (*Everett*); Fuga (*McGregor*); Guimaras (*Meyer, Steere Exp., Bourns & Worcester*); Leyte (*Everett, Steere Exp.*); Lubang (*McGregor*); Luzon (*Meyer, Everett, Steere Exp., Bourns & Worcester, Whitehead, McGregor*); Maestre de Campo (*McGregor & Worcester*); Marinduque (*Steere Exp.*); Masbate (*Bourns & Worcester, McGregor*); Mindanao (*Steere, Everett, Koch & Schadenberg, Steere Exp., Bourns & Worcester, Celestino, Goodfellow*); Mindoro (*Steere Exp., Schmacker, Bourns & Worcester, McGregor, Porter*), Negros (*Layard, Steere, Everett, Keay, Bourns & Worcester*); Palawan (*Whitehead, Platen, Steere Exp., Bourns & Worcester, White*); Panay (*Murray, Steere Exp., Bourns & Worcester*); Romblon (*McGregor*); Samar (*Steere Exp., Bourns & Worcester*); Semirara (*McGregor & Worcester*); Sibay (*McGregor & Worcester*); Sibutu (*Everett*); Sibuyan (*Bourns & Worcester, McGregor*); Siquijor (*Bourns & Worcester, Celestino*); Sulu (*Guillemard, Bourns & Worcester, Everett*); Tablas (*Bourns & Worcester*); Tawi Tawi (*Bourns & Worcester*); Ticao (*McGregor*); Verde (*McGregor*); Y'Ami (*McGregor*). Aru, Molucca, Tenimber, Lesser Sunda, and Sula Islands, Sumatra, Java, Celebes, Mysol.

Adult.—Forehead and crown greenish blue, set off by a black line which begins at lores, passes under eye to ear-coverts and meets it fellow on hind neck; this followed by a white collar; a spot of white behind each nostril; wings, back, rump, and tail blue; scapulars greenish blue like crown; rump and upper tail-coverts lighter and bluer; tail, primaries, and secondaries deeper blue; under parts all white; tail and wings blackish; wing-lining and axillars white; sexes alike in color. Iris dark brown; bill black except a wedge-shaped space on lower mandible which is pale yellow or dirty white. A male from Cagayancillo measures: Length, 240; wing, 105; tail, 70; culmen from base, 50; tarsus, 13. A female from Bohol: Length, 246; wing, 107; tail, 71; culmen from base, 52; tarsus, 15; middle toe with claw, 27.

Young.—Immature birds have the feathers of breast, sides of neck and breast, and sometimes the white collar, edged with black or dusky brown forming crescentic marks on the breast.

"The commonest of Philippine kingfishers. Frequently observed perching on native houses in villages and very common in coconut groves. Not infrequently found fishing along small fresh-water streams in the open, less common along wooded streams. Especially abundant in mangrove swamps and along the seashore. The usual native name is 'tick-a-rool'." (*Bourns and Worcester MS.*)

286. HALCYON HOMBRONI (Bonaparte).

HOMBRON'S KINGFISHER.

Actenoides hombroni BONAPARTE, Consp. Gen. Avium (1850), **1**, 157.
Halcyon hombroni SHARPE, Cat. Birds Brit. Mus. (1892), **17**, 284; Hand-List (1900), **2**, 61; MCGREGOR and WORCESTER, Hand-List (1906), 55.

Mindanao (*Hombron & Jacquinot, Steere, Everett, Steere Exp., Bourns & Worcester, Goodfellow, Celestino*).

"*Adult male.*—Head and nape bright blue, more brilliant on the sides of the head, above the eye, and on the nape; round the latter a narrow line of deep black; ear-coverts chestnut; along the lower line of the lores a streak of black, reaching below the eye, and widening behind the latter, being here washed with blue; cheeks bright blue, forming a broad band; sides of neck and hinder part of the latter deep tawny, varied with narrow black edgings to the feathers; mantle blackish, mottled with spots of tawny-buff, these being subterminal, with a narrow fringe of black; center of back, scapulars, and wing-coverts green, with a slight shade of verditer, each feather having a distinct subterminal spot of ochraceous-buff; quills blackish, externally washed with greenish, the primaries edged with ochraceous, the secondaries with the same subterminal spot of ochraceous as on the wing-coverts; lower back, rump, and upper tail-coverts bright silvery cobalt, the sides of the back and the lateral coverts blackish, washed with blue; tail-feathers deep blue, with black shafts; throat white, slightly washed with tawny; rest of the under surface deep tawny, whiter on the center of the abdomen; breast-feathers with narrow, nearly obsolete, blackish margins; thighs externally blackish, internally deep tawny; feathers at side of vent, adjoining the sides of the lower back, deep blue, the outer web more or less ochraceous; under wing-coverts and axillars deep tawny; quills blackish below, edged with pale tawny-buff along the inner web. Length, 287; culmen, 51; wing, 126; tail, 105; tarsus, 19." (*Sharpe.*)

Female.—Similar to the male but crown and cheek-band greenish; the greenish wash on wings very faint; tail faintly washed with green instead of blue.

"A strictly woods form, never met with in the open. Quite common in Mindanao, and so far as is at present known, confined to that island.

"Iris very dark brown; legs and feet dirty greenish olive; culmen black; bill along gape dirty red, darker at base. Food, beetles and small snails. Measurements from seven males: Length, 283; wing, 123; tail, 94; culmen, 46; tarsus, 16; middle toe with claw, 26. Six females, length, 278; wing, 120; tail, 94; culmen, 48; tarsus, 16; middle toe with claw, 28." (*Bourns and Worcester MS.*)

287. HALCYON LINDSAYI (Vigors).

LINDSAY'S KINGFISHER.

Dacelo lindsayi VIGORS, Proc. Zool. Soc. (1831), 97.
Halcyon lindsayi SHARPE, Cat. Birds Brit. Mus. (1892), **17**, 286; Hand-List (1900), **2**, 61; MCGREGOR and WORCESTER, Hand-List (1906), 55.

Luzon (*Lindsay, Eydoux & Souleyet, Möllendorff, Cuming, Everett, Heriot, Steere Exp., Bridges*).

"*Adult male.*—Above green, a little brighter on the center of lower back, rump, and upper tail-coverts; lateral upper tail-coverts and sides of lower back and rump dingy green, the scapulars, mantle, and wing-coverts each having a distinct spot of ocherous-buff; quills brown, externally edged with fulvous, secondaries greener, and terminally spotted with ocherous like the scapulars; tail-feathers dull greenish brown, fringed with sandy buff at the ends, the penultimate feather notched with buff on the inner web, the outermost one on both webs, producing a banded appearance; head green, the forehead with a few cinnamon feathers; lores black, surmounted by a streak of pale cinnamon-buff reaching above the eye and continued into a line of bright cobalt, which encircles the hinder crown and nape; feathers round the eye black, continued into a band which encircles the hind neck, and is followed by a band of cinnamon feathers, fringed with black; sides of face and ear-coverts cinnamon; throat pale cinnamon, separated from the band on the sides of the face by a broad band of bright cobalt, which occupies the cheeks and lateral margin of the throat; fore neck and breast mottled, the feathers being white, margined with green, the green edges diminishing in size on the lower breast, till they gradually disappear on the abdomen, which, with the under tail-feathers, is pure white; sides of body like the breast; thighs blackish, tipped with ocherous; under wing-coverts, axillars, and quill-lining fawn-buff. 'Bill black, the culmen and under mandible yellow; feet light green; iris brown.' (*Everett.*) Length, 241; culmen, 47; wing, 106; tail, 79; tarsus, 16.

"*Adult female.*—Resembles the male, but the band encircling the crown is green instead of blue; the broad band on the cheeks is also green, not blue; the throat is white; and the green edgings to the breast-feathers are less pronounced. 'Bill black, the culmen and mandible chrome-yellow; feet light green; claws horn-yellow; iris brown.' (*Everett.*) Length, 249; culmen, 47; wing, 109; tail, 89; tarsus, 16.

"*Young male.*—Like the adult male, but with smaller ocherous spots on the upper surface; the band round the crown and the cheek-stripe not so blue as in the adult, but not so green as in the female; under surface as in adult, but with a fulvescent tinge throughout.

"*Young female.*—Duller than the adult female, and with smaller ocherous spots; otherwise like the old female, and having a green band round the crown." (*Sharpe.*)

288. HALCYON MOSELEYI (Steere).

MOSELEY'S KINGFISHER.

Actenoides moseleyi STEERE, List. Birds & Mams. Steere Exped. (1890), 11.
Halcyon moseleyi SHARPE, Cat. Birds Brit. Mus. (1892), **17**, 288; Hand-List (1900), **2**, 61; GRANT, Ibis (1896), 557; MCGREGOR and WORCESTER, Hand-List (1906), 55.

Negros (*Steere Exp., Whitehead*).

"*Immature female* (type of species).—Similar to *H. lindsayi*, but distinguished by the edgings of the breast-feathers, which are black and not green. 'Bill black, culmen and lower mandible yellow; legs and feet greenish.' (*Moseley.*) Length, 264; culmen, 46; wing, 109; tail, 86; tarsus, 14." (*Sharpe.*)

"Moseley's kingfisher, a truly splendid species, is represented by three fully adult males. The only example previously known is the immature female originally described by Prof. Steere. From this female type the male birds before me appear to differ in the following points: The lower ear-coverts are chestnut instead of buff, the moustachial stripes cobalt-blue, like the band round the crown of the head, and there is a small triangular green patch in the middle of the black interscapular region. From the adult male of *H. lindsayi* they are easily distinguished by the generally black ground-color of the mantle and scapulars, as well as by the black margins to the feathers of the breast and flanks, only those in the middle of the breast being tinged with greenish. Length, 254; wing, 107; tail, 80; tarsus, 18." (*Grant.*)

"Discovered by Mr. E. L. Moseley after whom it was named by Dr. Steere. But one specimen was secured by him. We searched diligently for this fine *Halcyon* on our return to Negros, but failed to find it. It is undoubtedly extremely rare there. So far as we know at present this species is confined to Negros, and no closely related species is known from any island nearer than Luzon." (*Bourns and Worcester MS.*)

Suborder BUCEROTES.

Family **BUCEROTIDÆ.**

Bill very large; culmen curved, its basal part expanded into a hollow casque, or else the sides of the bill deeply chiseled; eyelids with large lashes; wings short and rounded; tail-feathers long and broad; outer and middle toes united for basal two-thirds, inner and middle toes united for basal joint; plumage harsh and rough; large noisy birds of heavy flight. The Philippine species are all well-marked and easily identified.

Genera.

a^1. Tail uniform, white, dirty buff, or yellowish brown, with no black bar.
  b^1. Bill bright red for its basal half at least; body plumage not all black. **Hydrocorax** (p. 327)
  b^2. Bill not red; plumage, except tail, all black.
    c^1. Bill entirely black.......... **Anthracoceros** (p. 330)
    c^2. Bill nearly all white.......... **Gymnolæmus** (p. 331)
a^2. Tail not uniform in color, a wide black or blackish bar at its end.
  b^1. Bill not bright red.......... **Penelopides** (p. 332)
  b^2. Bill bright red.......... **Craniorrhinus** (p. 338)

Genus HYDROCORAX Brisson, 1760.

Bill and casque very large, the latter flat on top, overhanging on each side and its posterior border overhanging and extending to above the ear; bill smooth except for a few shallow furrows on base of lower mandible; chin and throat feathered; a small bare space about the eye.

Species.

a^1. Upper outline of casque straight, its anterior end forming a projection which overhangs the culmen in front.
  b^1. Casque and bill entirely bright red.......... **hydrocorax** (p. 327)
  b^2. Casque and basal half of bill bright red, terminal half of bill whitish. **mindanensis** (p. 328)
a^2. Upper outline of casque not straight, its anterior end sinking to the culmen and not forming an anterior overhanging projection.......... **semigaleatus** (p. 329)

289. HYDROCORAX HYDROCORAX (Linnæus).

LUZON CALAO.

Buceros hydrocorax LINNÆUS, Syst. Nat. ed. 12 (1766), **1**, 153.
Hydrocorax hydrocorax GRANT, Cat. Birds Brit. Mus. (1892), **17**, 358; SHARPE, Hand-List (1900), **2**, 64; MCGREGOR and WORCESTER, Hand-List (1906), 55.

Ca-lao, Manila; *reloj del monte,* Spanish name.

Luzon (*Meyer, Möllendorff, Everett, Steere Exp., Whitehead, McGregor*); Marinduque (*Steere Exp.*).

Adult.—Chin, upper throat, a band from throat to eye, and feathers above eye, all black, followed on throat by a white space which shades gradually into the dull chestnut-brown of lower throat and sides of neck and head; breast and sides black; abdomen, thighs, and crissum dull chestnut; back, rump, and wings brown, the rump lighter; primaries and most of the secondaries black, some of the latter edged with pale buff; tail-feathers pure white when fresh but soon becoming yellow or dirty buff. Entire casque and bill bright red. "Naked skin round eye yellow; iris red; feet brownish red; nails black." (*Everett.*) Length of male, about 950; wing, 410; tail, 350; bill from nostril, 160; greatest length of casque, 160; greatest width of casque, 52; tarsus, 60.

"*Adult female.*—Similar to the male. Length, 914; wing, 381; tail, 295; tarsus, 56.

"*Young.*—Cheeks and upper parts of head blackish; rest of head and neck, rump, thighs, crissum, and under tail-coverts yellowish white mixed with rufous; breast and belly yellowish white mixed with blackish gray; back, wing-coverts, scapulars, and outer secondaries reddish brown, the wing-coverts tipped and the scapulars and secondaries margined with buff; primaries and rest of secondaries brownish black, margined on the outer web and tipped with buff; basal two-thirds of tail-feathers reddish brown, margined in all except the middle pair with black. Bill and casque dark black, except the base of the lower mandible and the extreme tip of the bill, which are blood-red." (*Grant.*)

The three Philippine species of *Hydrocorax* do not differ in colors but they are easily distinguished by the color and shape of the bill and its casque. These large hornbills frequent forest, where they feed on fruits, usually in high trees. Their call is loud and penetrating and may be heard at a great distance. Their flight is rather labored and produces a great noise.

290. HYDROCORAX MINDANENSIS (Tweeddale).

MINDANAO CALAO.

Buceros mindanensis TWEEDDALE, Proc. Zool. Soc. (1877), 543; Challenger Report, Zool. (1881), **2**, pt. 8, pl. 3.

Hydrocorax mindanensis GRANT, Cat. Birds Brit. Mus. (1892), **17**, 359; SHARPE, Hand-List (1900), **2**, 64; MCGREGOR and WORCESTER, Hand-List (1906), 55.

Basilan (*Everett, Steere Exp., Bourns & Worcester, McGregor*); Mindanao (*Murray, Everett, Koch & Schadenberg, Steere Exp., Bourns & Worcester, Goodfellow, Celestino*).

Adult.—Plumage as in *H. hydrocorax* but casque much narrower and bill with distal two-thirds white. "Naked skin round eye sooty black, yellow just before the eye, gular skin yellow; iris light yellow (light green in living bird); feet coral-red; nails dark brownish gray." (*Everett.*) Length of male, about 915; wing, 390; tail, 300; bill from nostril, 155; greatest length of casque, 136; greatest width of casque, 42; tarsus, 52. Length of female, 863; wing, 365; tail, 290; bill from nostril, 136; greatest length of casque, 124; greatest width of casque, 39; tarsus, 48.

"*Young.*—Upper part of head and cheeks black; feathers on chin and breast white, blackish gray at base; rest of head, neck, rump, belly, flanks, and tail-coverts white mixed with rufous; back, upper wing-coverts, scapulars, and outer secondaries brown, the three latter widely tipped, and the last named also widely margined on both webs with white; rest of secondaries and primaries blackish brown, with a white margin on the outer web, gradually increasing in width on the outer secondaries; under wing-coverts brownish buff; middle feathers of tail have basal two-thirds brown, and the rest the basal half dull chestnut; the remainder of the feathers white; casque rudimentary. Bill black, yellowish at the tip; naked skin round eye and on gular region yellow; legs gray-green (in skin)." (*Grant.*)

"Habits like those of *H. semigaleatus.* Eyes yellow to brown in female, light bluish gray in male; legs and feet red; bill scarlet on basal half, rest yellowish white; bill of young birds black. A male measures 927 in length; wing, 393; tail, 312; tarsus, 54; middle toe with claw, 66." (*Bourns and Worcester MS.*)

291. **HYDROCORAX SEMIGALEATUS** (Tweeddale).

INTERMEDIATE CALAO.

Buceros semigaleatus TWEEDDALE, Proc. Zool. Soc. (1878), 279.
Hydrocorax semigaleatus GRANT, Cat. Birds Brit. Mus. (1892), **17**, 360; SHARPE, Hand-List (1900), **2**, 64; MCGREGOR and WORCESTER, Hand-List (1906), 55.

Cao, Bohol.

Bohol (*McGregor*); Leyte (*Everett, Steere Exp., Whitehead*); Panaon (*Everett*); Samar (*Steere Exp., Bourns & Worcester, Whitehead*).

Adult.—Colors of plumage as in the two preceding species, colors of bill as in *H. mindanensis,* but the casque abruptly contracted in front and its upper outline, in front, continuous with that of the culmen. "Naked skin round eye darkest sepia, almost black; gular skin dark indian-yellow; iris light yellow (light green in living bird); feet coral-red; nails dark brownish gray." (*Everett.*) Length of male, about 890; wing, 400; tail, 320; bill from nostril, 153; greatest width of casque, 53; tarsus, 53.

"*Adult female.*—Does not differ in plumage from the male. Length, 787; wing, 350; tail, 279; tarsus, 53.

"*Young.*—Similar to that of *H. mindanensis,* except that the outer tail-feathers have not the basal half chestnut, although the middle feathers are the same.

"In older examples of both sexes, when the adult plumage has been nearly attained the bill is jet-black, the yellow tip of the young having disappeared, and the anterior part of the casque is distinctly raised above the line of the culmen." (*Grant.*)

"Extremely abundant on the hills back of Catbalogan in Samar. Sometimes comes down into the mangrove swamps near the town. In damp weather its hoarse cry can readily be heard a mile. Usually frequents very lofty trees, but may be readily called down by imitating its note. We secured a fine series of specimens in this way. In a few cases we observed *H. semigaleatus* feeding in low brush, and even on the ground. This species has a highly developed oil-gland the secretion from which is gamboge-yellow. When the feathers are well oiled the color of the whole bird is changed. Feeds on fruit.

"Two males measure, 883 in length; wing, 385; tail, 305; tarsus, 57; middle toe with claw, 74. Six females, length, 830; wing, 361; tail, 298; tarsus, 53; middle toe with claw, 71." (*Bourns and Worcester MS.*)

Genus ANTHRACOCEROS Reichenbach, 1849.

Casque small, compressed and rounded on top, its outline gently curved, rounded and vertical behind, and continuous with culmen in front; very fine striæ near base of bill; chin and upper throat partly feathered.

292. ANTHRACOCEROS MONTANI (Oustalet).

MONTANO'S HORNBILL.

Buceros montani OUSTALET, Bull. Hebd. Assoc. Scien. Fr. (1880), 205.

Anthracoceros montani GRANT, Cat. Birds Brit. Mus. (1892), **17**, 370; SHARPE, Hand-List (1900), **2**, 64; MCGREGOR and WORCESTER, Hand-List (1906), 55.

Sulu (*Montano & Rey, Bourns & Worcester*); Tawi Tawi (*Bourns & Worcester*).

Adult (*sexes alike*).—Tail white; remainder of plumage black; back and wings slightly glossed with green. A female measures: Wing, 290; tail, 260; bill from nostril, 101; tarsus, 52. This species has been described as having the tail entirely white but in a female specimen collected in Tawi Tawi, November 2, 1891, by Bourns and Worcester, two rectrices on one side have the outer web black for about three-fourths of the distance from base to tip and one feather on the other side of the tail has the outer web black to a less extent; the inner webs, also, are black for a short distance on two of these feathers. More specimens are necessary to determine whether this is an individual variation or a normal character, perhaps dependent upon age, which has been previously overlooked.

"We were fortunate enough to secure a series of fourteen specimens of this rare hornbill from Sulu and Tawi Tawi. The tail is pure white; all other parts black, the feathers of the back and wings glossed with dark green. The bill in adult birds is coal-black; all of our adult males had the iris nearly white, while in the adult females it was dark brown; legs and feet dull leaden, nails black. Young birds have the tip of the bill white or pale horn.

"Common on the hills back of the town of Sulu, and very abundant in Tawi Tawi where it occurs in great flocks, but very wild and extremely difficult to approach. The cry of this bird is the most peculiar bird-note we have ever heard. It begins with a series of notes precisely like the 'song' of a common hen magnified about fifty-fold, and ends with an indescribable combination of cackles and shrieks.

"Two males from Tawi Tawi measure, 717 in length; wing, 293; tail, 243; tarsus, 52; middle toe with claw, 59. Six females from same locality measure: Length, 672; wing, 268; tail, 224; tarsus, 51; middle toe with claw, 55. A male and two females from Sulu are slightly smaller. Eyes vary from nearly white to nearly black, the females usually having the darker eyes; bare skin of head black; bill black. Food fruit." (*Bourns and Worcester MS.*)

Genus GYMNOLÆMUS Grant, 1892.

Casque large, compressed, and fairly smooth, its top rounded, outline gently curved, overhanging behind and abruptly truncated in front; no chiseling on sides of bill; chin, upper throat, and large space around eye entirely nude.

293. **GYMNOLÆMUS LEMPRIERI** (Sharpe).

PALAWAN HORNBILL.

Anthracoceros lemprieri Sharpe, Nature (1885), **32**, 46 (desc. nulla); Proc. Zool. Soc. (1885), 446, pl. 26; Everett, Ibis (1895), 30.
Anthracoceros marchii Oustalet, Le Naturaliste (1885), 108.
Gymnolæmus marchii Grant, Cat. Birds Brit. Mus. (1892), **17**, 370.
Gymnolæmus lemprieri Sharpe, Hand-List (1900), **2**, 65; McGregor and Worcester, Hand-List (1906), 56.

Balabac (*Everett*); Calamianes (*Bourns & Worcester*); Palawan (*Marche, Lempriere, Whitehead, Platen, Steere Exp., Celestino*).

Adult male.—Rectrices pure white, their shafts pale yellow; remainder of plumage black, glossed with dark green. A male from Palawan measures: Length, about 710; wing, 290; tail, 240; bill from nostril, 111; greatest length of crest, 106; tarsus, 52.

"*Adult female.*—Resembles the male, but the casque is less developed and the size smaller. Length, 610; wing, 264; tail, 216; tarsus, 53." (*Grant.*)

"We saw this bird on several occasions in Palawan, but always in very high trees, and it was so extremely wild that we did not succeed in securing any specimens from that island. In the Calamianes Islands we found it both common and tame. On several occasions we saw it feeding in low fruit trees within a few feet of the ground.

"Iris brown; legs and feet leaden; nails black; bill white except base of lower mandible; bare skin of head white. A female measures, 610 in length; wing, 263; tail, 204; tarsus, 46; middle toe with claw, 58." (*Bourns and Worcester MS.*)

Genus PENELOPIDES Reichenbach, 1849.

Casque small, compressed, ridged on top, its outline curved, posteriorly falling away gently to the culmen; abruptly or obliquely truncate in front; basilateral portion of both mandibles with deep oblique chiseling; part of chin naked but feathered in the middle.

Species.

- a^1. Abdomen rufous; thighs chestnut.......... **panini**, ♂ (p. 332)
- a^2. Abdomen and thighs neither chestnut nor rufous.
  - b^1. Breast and abdomen white.
    - c^1. Base of both mandibles with deep grooves; tail black with a wide band of white or rufous across the middle.......... **manillæ**, ♂ (p. 333)
    - c^2. Base of upper or lower mandible, but never both, with deep grooves.
      - d^1. Base of upper mandible only with grooves; no black band at base of tail; sexes alike in plumage.......... **mindorensis** (p. 335)
      - d^2. Base of lower mandible only with grooves; tail with some black at the base.
        - e^1. Upper tail-coverts black.
          - f^1. A black patch on basal half of upper mandible.......... **affinis**, ♂ (p. 336)
          - f^2. No black patch at base of upper mandible which is flesh-colored. **basilanica**, ♂ (p. 337)
        - e^2. Upper tail-coverts white, tinged with buff.......... **samarensis**, ♂ (p. 337)
  - b^2. Breast and abdomen black.
    - c^1. Tail black with a rufous band about 25 mm. wide across the middle; base of each mandible with deep grooves.. { **manillæ**, ♀ (p. 333)
talisi, ♀ (p. 334) }
    - c^2. Tail rufous, widely tipped with black and with more or less black at base.
      - d^1. Base of each mandible grooved; black at base of tail almost obsolete. **panini**, ♀ (p. 332)
      - d^2. Base of lower mandible only grooved; black at base of tail well-marked.......... { **affinis**, ♀ (p. 336); **basilanica**, ♀ (p. 337); **samarensis**, ♀ (p. 337) }

294. PENELOPIDES PANINI (Boddaert).

PANAY TARICTIC.

Buceros panini BODDAERT, Tabl. Pl. Enl. (1783), 48.
Penelopides panini WALDEN, Trans. Zool. Soc. (1875), **9**, 166, pl. 28; GRANT, Cat. Birds Brit. Mus. (1892), **17**, 372; SHARPE, Hand-List (1900), **2**, 65; MCGREGOR, Bur. Govt. Labs. (1905), **25**, 25, pl. 9 (nest); McGREGOR and WORCESTER, Hand-List (1906), 56.

Ta-ric'-tic, Ticao; *ta-ric'*, Masbate.

Guimaras (*Meyer, Steere Exp.*); Masbate (*Steere Exp., Bourns & Worcester*); Negros (*Everett, Steere Exp., Bourns & Worcester, Whitehead*); Panay (*Sonnerat, Steere Exp., Bourns & Worcester*); Ticao (*McGregor*).

Male.—Head, neck, and breast pale buff; cheeks, ear-coverts, and a band across neck black; back and wings black, glossed with dark green; abdomen rufous; crissum, thighs, and upper tail-coverts chestnut; tail light rufous, terminal third black, slightly glossed with green. Iris red; bare skin of face white; legs dark brown; bill and casque dull red, base of upper mandible with six or seven vertical ridges, separated by pale yellow grooves; base of lower mandible with several oblique grooves. Length, 650; wing, 290; tail, 275; bill from nostril, 97; tarsus, 48.

Female.—Black; neck, wings, and back glossed with dark green; tail as in the male but outer web of outermost feather entirely black and inner web black at base; next feather with outer web black at base. Iris red; bare skin of head bluish; legs and nails black; bill black, casque dark red; grooves on upper mandible light yellow. Length, 600; wing, 260; tail, 245; bill from nostril, 78.

"*Young female* (without casque and only one ridge developed on the base of the upper mandible).—Differs from the adult in having the upper tail-coverts chestnut and the middle of the basal part of the tail-feathers with more black. 'Naked skin round eye and on throat white, faintly tinged with bluish; iris dull chestnut-brown; feet dark lead-gray with faint greenish cast, nails black; bill brown, with olive-green tinge.' (*Everett.*)" (*Grant.*)

"Very common in many parts of Panay, Guimaras, Negros, and Masbate, but curiously enough absent in Cebu. A very noisy bird, called 'ta-ric-tic' by the natives from its note. Food fruit and occasional beetles. Iris brownish red; legs and feet slate-color; nails black; bare skin of head white.

"Four males from Masbate measure, 652 in length; wing, 260; tail, 228; tarsus, 45; middle toe with claw, 52. Four females from same locality, length, 607; wing, 252; tail, 216; tarsus, 44; middle toe with claw, 47." (*Bourns and Worcester MS.*)

A set of three eggs of the Panay tarictic taken in Ticao, May 9, 1902, measure: 48.5 by 32.5; 46.7 by 33.7; 45.7 by 33. In color they are dull white with no markings except a few nest stains; their surface is chalky with occasional minute lumps. The eggs were deposited in a cavity in the trunk of a large tree. The entrance was plastered up by the birds, leaving but a narrow slit through which the female was fed by her mate. The female remains within the cavity during the whole period of incubation. As she molts at this time she is probably unable to fly even if liberated.

295. **PENELOPIDES MANILLÆ** (Boddaert).

LUZON TARICTIC.

Buceros manillæ Boddaert, Tabl. Pl. Enl. (1783), 54.

Penelopides manillæ Grant, Cat. Birds Brit. Mus. (1892), **17**, 373; McGregor and Worcester, Hand-List (1906), 56.

Penelopides manillæ Sharpe, Hand-List (1900), **2**, 65.

Ta-lic-tic, native name in vicinity of Manila.

Luzon (*Cuming, Meyer, Everett, Heriot, Marche, Steere Exp., Whitehead, McGregor*); Marinduque (*Steere Exp.*).

"*Adult male.*—Top of the head and neck yellowish white; cheeks, ear-coverts, and feathered part of throat black; back, rump, upper tail-coverts, and wings brown, more or less glossed with dull green, most of the primaries, the secondaries, and their coverts narrowly margined with buff on the outer web; breast, belly, thighs, and under tail-coverts white, tinged with buff; basal half of tail dark brown, succeeded by a wide white band (stained rufous) followed by a terminal black band glossed with green; the outer web of the outer tail-feathers is uniform black; naked skin round eye and on chin and throat white. Iris crimson; feet and nails dull black; casque transparent horn-brown; bill dark brown; the base of the upper mandible with five transverse ridges, that of the lower with about four oblique ridges separated by ocher-colored grooves. Length, 525; wing, 233; tail, 188; tarsus, 43.

"*Young male* differs from the adult in having the upper tail-coverts chestnut and the buff edges to the quills and coverts much wider.

"*Adult female.*—Head and neck very dark brown; back, rump, upper tail-coverts, and wings dark brown, glossed with dull green; under parts brownish gray, tinged with buff on the breast; tail as in the male adult; naked skin round eye and on chin and throat purplish. Iris brown; legs and feet dull black; bill and casque as in the male. Length, 483; wing, 221; tail, 185; tarsus, 41.

"*Young female* with half developed casque differs from the adult in having the under parts buff, edges of both the webs of the tail-feathers margined with brown, and the upper tail-coverts and the ends of the feathers suffused with bright buff." (*Grant.*)

296. **PENELOPIDES TALISI** Finsch.

NORTHERN TARICTIC.

Penelopides talisi FINSCH, Notes Leyden Mus. (1903), 23, 190; MCGREGOR and WORCESTER, Hand-List (1906), 56.

Talisi, native name.
Luzon (*van der Valk*).

Adult male.—Appears to differ from *P. manillæ* in having no light edges to the primaries and in the banding of the tail-feathers which is as follows: Middle pair with a rust-colored cross-band, 25 mm. wide; on the pair next to the middle the band only one-half as wide; on the third pair only the inner web with small light rust-colored spots which form cross-bands; two outermost tail-feathers on each side uniform brownish black; upper mandible with four basal grooves. Length, 500; wing, 243; tail, 220; bill, 95.*

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* The description of the male, as given by Dr. Finsch, is as follows:

"Altes Männchen. Oberseite des Kopfes, Hals und alle unteren Theile (einschliesslich der unteren Schwanzdecken) rostgelblichweiss; Wangen und Ohrgegend, This species was described from an adult male collected in Cagayan Province, Luzon, February 23, 1892; if it is distinct from *P. manillæ,* as seems quite probable, we have the interesting case of two species of *Penelopides* resident in the same island. I have not examined birds referable to *P. talisi* and the diagnosis is taken from Finsch's description which will be found in the footnote.

A hornbill collected in Albay Province, Luzon, and recorded by Grant as the young of *P. manillæ,* Ibis (1895), 261, is believed by Finsch to be *P. talisi.*

297. **PENELOPIDES MINDORENSIS** Steere.

MINDORO TARICTIC.

Penelopides mindorensis STEERE, List Birds & Mams. Steere Exped. (1890), 13; GRANT, Cat. Birds Brit. Mus. (1892), **17**, 374; SHARPE, Hand-List (1900), **2**, 65; McGREGOR and WORCESTER, Hand-List (1906), 56.

Ta-ric-tic, Mindoro.

Mindoro (*Steere Exp., Schmacker, Bourns & Worcester, Everett, Whitehead, McGregor, Porter*).

Male.—Crown, sides of neck, and under parts whitish; ear-coverts and band across throat black; hind neck, back, rump, upper tail-coverts, and wings black, glossed with dark green, some of the wing-feathers edged with pale buff; tail chestnut, its terminal third black, outermost feather with entire outer web and most of the inner web black. Wing, 235; tail, 205; bill from nostril, 74.

Female.—Similar to the male but forehead blackish and black band on upper throat wider. Wing, 235; tail, 210; bill from nostril, 77.

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von letzterer in einem breiteren Bande um die nackte Kehle sich herumziehend. braunschwarz; alle oberen Theile (einschliesslich der oberen Schwanz- und unteren Flugeldecken) dunkelbraun, mit schwach grünlichem Metallschimmer, der auf den dunkleren Schwingen deutlicher hervortritt (keine hellen Schwingensäume); Schwanzfedern schwarzbraun mit grünlichem Metallschimmer, die zwei mittelsten Federn (etwas unterhalb der Mitte) mit einer (25 mm.) breiten rostfarbenen Querbinde, die auf der folgenden nur halb so breit ist, auf der nächstfolgenden nur an der Innenfahne kleine hellrostfarbene Querflecke, die keine eigentliche Binde bilden; die zwei äussersten Schwanzfedern jederseits einfarbig braunschwarz; Schnabel schwarz, etwas rothbraun durchscheinend, der Aufsatz in ein röthliches Hornbraun übergehend, das gegen die Basis zu viel heller und etwas durchscheinend ist; auf der Basishälfte des Oberschnabels machen sich vier schwach vertiefte Furchen bemerkbar, die von der Mitte bis zum Schneidenrande herablaufen und sich als senkrechte gelbliche Streifen abheben; Unterschnabel mit drei schief nach vorn laufenden Längsrillen, von denen die basale röthlichbraun gefärbt ist; der nackte Augenkreis schmutzig fleischröthlich; die nackte Basis des Unterschnabels, wie die Nacktheit an Kinn und Kehle, schmutzig gelblich; Fusse hornschwarz.

"(Im Leben: 'Iris braunroth, Schnabel braunroth mit gelben Streifen an der Wurzel, Füsse dunkelgrau beinahe schwarz'; Eingeborenen-Name 'Talisi': van der Valk)."

"*Adult male.*—Is most nearly allied to *P. panini,* but differs from that species in having the belly and under tail-coverts white, the rump and upper tail-coverts black glossed with green, like the rest of the back, and the upper mandible only with transversely grooved basal plates. From *P. manillæ* and *affinis* it differs (and resembles *P. panini*) in having no black at the base of the tail. Length, 565; wing, 246; tail, 203; tarsus, 43." (*Grant.*)

"Similar to *P. manillæ,* but black with bronze-green gloss instead of brown as in *P. manillæ.* The whole base of the tail is light ferruginous instead of this color being limited to a narrow bar as in *P. manillæ,* and the lower mandible is plain instead of being chiseled as in that species. The female of *P. mindorensis* has the feathers of the head white as in the male, thus differing from the other Philippines species, in all of which the females are black-headed.

"The males and females of *P. mindorensis* differ chiefly in the color of the bare skin about the eye and base of the beak, this in life being dark blue in the female and flesh-colored in the male." (*Steere.*)

"Habits like those of *P. manillæ.* All the Philippine representatives of this genus have the peculiar undulating flight of woodpeckers when going for any considerable distance. *P. mindorensis* is exceedingly abundant in Mindoro." (*Bourns and Worcester MS.*)

298. **PENELOPIDES AFFINIS** Tweeddale.

ALLIED TARICTIC.

Penelopides affinis TWEEDDALE, Ann. & Mag. Nat. Hist. (1877), (4), **20**, 534; GRANT, Cat. Birds Brit. Mus. (1892), **17**, 375; SHARPE, Hand-List (1900), **2**, 65; MCGREGOR and WORCESTER, Hand-List (1906), 56.

Dinagat (*Everett*); Mindanao (*Everett, Koch & Schadenberg, Steere Exp., Goodfellow, Clemens, Celestino*).

"*Adult male.*—Top of the head and neck yellowish white; cheeks, ear-coverts, and feathered part of throat black; back, rump, upper tail-coverts, and wings black, glossed with dark green; breast, belly, thighs, and under tail-coverts white, tinged with buff; tail white (stained rufous), with a wide terminal black band and some black at the base of the feathers, sometimes a band nearly as wide as at the extremity. 'Naked skin round eye and on chin and throat white; iris crimson; feet greenish lead; nails grayish black; basal half of bill and casque dark brown, rest of bill pale brown; base of the lower mandible with three or four obliquely transverse yellow ridges separated by dark brown grooves.' (*Everett.*) Length, 500; wing, 236; tail, 195; tarsus, 41.

"*Young male* (with undeveloped casque) differs from the adult in having the upper tail-coverts chestnut and the black band across the end of the tail suffused with rufous.

"*Adult female.*—Head, neck, and under parts dull black; back, rump, upper tail-coverts, and wings black, glossed with dark green; tail resembles that of the male. 'Naked skin round eye and on chin and throat dark blue: iris crimson, feet dark greenish leaden.' (*Everett.*) Bill and casque brown, base of lower mandible with indistinct obliquely transverse grooves. Length, 500; wing, 218; tail, 175; tarsus, 41.

"*Young female* (with undeveloped casque) differs from the adult in having chestnut upper tail-coverts and the black band across the end of the tail suffused with rufous." (*Grant.*)

299. **PENELOPIDES BASILANICA** Steere.

BASILAN TARICTIC.

Penelopides basilanica STEERE, List Birds & Mams. Steere Exped. (1890), 13; GRANT, Cat. Birds Brit. Mus. (1892), **17**, 375; SHARPE, Hand-List (1900), **2**, 65; MCGREGOR and WORCESTER, Hand-List (1906), 56.

Basilan (*Everett, Steere Exp., Bourns & Worcester, McGregor*).

"Much like *P. affinis* of Mindanao, but differs from it in having the rufous upon the tail reaching to and beneath the upper tail-coverts, so that the whole base of the tail appears rufous, though some specimens show some black at the bases of the feathers when they are uncovered. The sides of the mandible are also flesh-colored to their bases instead of being black behind as in *P. affinis*." (*Steere.*)

"The differences enumerated by Steere between this species and *P. affinis,* though slight, occur in all the specimens secured by us. A male measured, 610 in length; wing, 231; tail, 205; tarsus, 45; middle toe with claw, 46. A female, length, 559; wing, 211; tail, 183; tarsus, 39; middle toe with claw, 45. Eyes red to umber-brown; legs and feet greenish slate-color; nails black; bill white at tip, black on crest, remainder mottled with reddish brown." (*Bourns and Worcester MS.*)

300. **PENELOPIDES SAMARENSIS** Steere.

SAMAR TARICTIC.

Penelopides samarensis STEERE, List Birds & Mams. Steere Exped. (1890), 13; GRANT, Cat. Birds Brit. Mus. (1892), **17**, 376; SHARPE, Hand-List (1900), **2**, 65; MCGREGOR and WORCESTER, Hand-List (1906), 56.

Tao-sí, Bohol.

Bohol (*McGregor*); Leyte (*Everett, Steere Exp.*); Samar (*Steere Exp., Bourns & Worcester, Whitehead*).

Male.—Very similar to the male of *P. affinis* but upper tail-coverts very pale buff. Wing, 260; tail, 230; bill from nostril, 90.

Female.—Like the female of *P. affinis*. Wing, 235; tail, 225; bill from nostril, 72.

"A well-marked species. Five males average, 606 in length; wing, 232; tail, 208; tarsus, 42; middle toe with claw, 52. Eyes reddish brown;

legs and feet slaty black; nails brown to black; bill dark brown, reddish at the tip and around grooves.

"It seems probable that Everett's Dinagat birds were of this species, but they can, of course, be placed here only provisionally." (*Bourns and Worcester MS.*)

Genus CRANIORRHINUS Cabanis and Heine, 1860.

Jaw, entire chin, and a large space around eye naked and bright red; base of lower mandible deeply and obliquely chiseled, upper mandible smooth; casque high, greatly compressed, its outline gently rounded behind and abruptly truncated in front; in the female the casque is smooth and has a sharp ridge above, in the male it is somewhat rounded above, and the sides are distorted by deep vertical plications.

Species.

a^1. Tail white with a black band at tip.................................... **leucocephalus** (p. 338)
a^2. Tail white, stained rufous, the basal third and the tip black.... **waldeni** (p. 339)

301. CRANIORRHINUS LEUCOCEPHALUS (Vieillot).

WHITE-HEADED HORNBILL.

Buceros leucocephalus VIEILLOT, Nov. Dict. d' Hist. Nat. (1816), **4**, 592.
Craniorrhinus leucocephalus WALDEN, Trans. Zool. Soc. (1875), **9**, 165, pl. 27.
Cranorrhinus leucocephalus GRANT, Cat. Birds Brit. Mus. (1892), **17**, 378; SHARPE, Hand-List (1900), **2**, 65; MCGREGOR and WORCESTER, Hand-List (1906), 56.

Camiguin S. (*Cuming*); Mindanao (*Steere, Everett, Koch & Schadenberg, Steere Exp., Bourns & Worcester, Clemens, Goodfellow, Celestino*).

"*Adult male.*—Occiput, nape, and back of neck deep chestnut; rest of head, neck, and upper chest buff; tail white, with a terminal black band; rest of plumage black, glossed with dark bluish green. Naked skin round eye and on chin and throat fiery orange-red; iris crimson; feet dull black; bill and casque deep red; lower mandible crossed at the base by four or more obliquely transverse ridges, the basal one being dark red, the rest whitish and separated from one another by brown grooves; casque with numerous transverse folds. Length, 737; wing, 335; tail, 244; tarsus, 51.

"*Adult female.*—Differs from the male in having the plumage of head and neck dark shining black, and the casque smooth. Length, 597; wing, 302; tail, 22; tarsus, 46." (*Grant.*)

"Common in Mindanao. Seems not to occur in Basilan. Frequents the highest trees and feeds on fruit. Eyes red; legs black; tops of feet black, bottoms yellowish; bill dark scarlet. A male measures, 711 in length; wing, 319; tail, 232; tarsus, 50; middle toe with claw, 54." (*Bourns and Worcester MS.*)

When new the tail-feathers are white but they soon turn light buff. The male is much larger than the female and has a larger casque. A male from northern Mindanao is 762 in length; wing, 360; tail, 235; bill from nostril, 126; length of casque at base, 76; tarsus, 50. A female is 620 in length; wing, 290; tail, 220; bill from nostril, 89; length of casque at base, 57; tarsus, 49.

302. **CRANIORRHINUS WALDENI** Sharpe.

WALDEN'S HORNBILL.

Craniorrhinus waldeni Sharpe, Trans. Linn. Soc. (1877), 1, 322.
Cranorrhinus waldeni Grant, Cat. Birds Brit. Mus. (1892), 17, 380: Sharpe, Hand-List (1900), 2, 65; McGregor and Worcester, Hand-List (1906), 56.

Guimaras (*Steere Exp.*); Negros (*Steere Exp., Keay, Whitehead*); Panay (*Steere, Steere Exp., Bourns & Worcester*).

"*Adult male.*—Head, neck, and chest dark chestnut, the feathers next the naked parts of the face and throat inclining to buff; tail white (stained rufous), the basal third and the tips of the feathers black; rest of the plumage black, the upper parts glossed with dark green; naked skin round the eye and on the throat yellow; iris red; legs and feet black; bill and casque red, except toward the end; base of the lower mandible covered by a plate with dark-colored oblique grooves; casque transversely folded. Length, 724; wing, 345; tail, 254; tarsus, 51.

"*Adult female.*—Differs from the male in having all the plumage of the head and neck black, and the casque without transverse folds; naked skin appears to have been black mixed with yellow. Length, 673; wing, 310; tail, 218; tarsus, 48." (*Grant.*)

"Hornbills, almost certainly of this species, were seen by the Steere expedition in Negros, but no specimens were obtained." (*Bourns and Worcester MS.*)

Suborder MEROPES.

Family **MEROPIDÆ.**

Bill long, slender, pointed, and gently curved downward for its entire length; a well-defined ridge on culmen; tarsi short and unfeathered; fourth and third toes united to last joint; second toe united to middle toe for basal joint only; eggs white, deposited in holes in sandy ground, the birds usually nesting in colonies.

Genus MEROPS Linnæus, 1758.

Tail moderate, composed of twelve feathers, middle pair slender and prolonged beyond the others; wing moderately long and pointed, first primary very short, second longest.

Species.

a^1. Mantle and crown chestnut; throat pale green........................ **americanus** (p. 340)
a^2. Mantle and crown green; throat largely chestnut................ **philippinus** (p. 341)

303. MEROPS AMERICANUS P. L. S. Müller.

CHESTNUT-HEADED BEEBIRD.

Merops americanus P. L. S. MÜLLER, Natursyst. Suppl. (1776), 95; McGREGOR and WORCESTER, Hand-List (1906), 56.

Merops bicolor BODDAERT, Tabl. Pl. Enl. (1783), 15; WALDEN, Trans. Zool. Soc. (1875), **9**, 150, pl. 26, fig. 1; SHARPE, Cat. Birds Brit. Mus. (1892), **17**, 60; Hand-List (1900), **2**, 73; OATES and REID, Cat. Birds' Eggs (1903), **3**, 49.

Pe-ric', Manila; *pi-ley pi-ley*, Lubang.

Bohol (*McGregor*); Cagayancillo (*McGregor*); Calamianes (*Bourns & Worcester*); Catanduanes (*Whitehead*); Cebu (*Everett, Bourns & Worcester, McGregor*); Cresta de Gallo (*McGregor*); Fuga (*McGregor*); Guimaras (*Steere Exp.*); Leyte (*Everett*); Lubang (*McGregor*); Luzon (*Meyer, Möllendorff, Everett, Steere Exp., Whitehead, McGregor*); Marinduque (*Steere Exp.*); Masbate (*Bourns & Worcester, McGregor*); Mindanao (*Steere, Murray, Everett, Koch & Schadenberg, Steere Exp., Bourns & Worcester, Celestino, Goodfellow*); Mindoro (*Steere Exp., Schmacker, McGregor, Porter*); Negros (*Meyer, Everett, Steere Exp., Bourns & Worcester*); Panay (*Steere, Bourns & Worcester*); Samar (*Bourns & Worcester, Whitehead*); Semirara (*Worcester*); Sibuyan (*McGregor*); Tablas (*Bourns & Worcester*).

Adult (*sexes alike*).—Above, from bill to and including mantle and sides of neck, bright chestnut; lower back, rump, and upper tail-coverts clear sky-blue; a band from corner of mouth through eye to ear-coverts black, bordered below by sky-blue; below apple-green, lighter posteriorly and more or less mixed with blue; under tail-coverts light blue; wings and coverts dark green; primaries and secondaries with dusky tips and dark ocherous-buff inner webs; long tertials tipped with dark blue; tail above dark cerulean-blue, the lateral feathers darker than middle pair which are broadly tipped with black; shafts black, tail brown below. Iris bright red; bill and nails black; legs dark flesh. Length, including long tail-feathers, about 300. Three males from Mariveles, Luzon, measure: Wing, 117 to 118; tail, without long feathers, 87; bill from nostril, 34 to 36.

"*Young.*—Differs from the adult in being duller and greener, the red of the head being overshaded with green and the mantle and upper back green; the under surface is paler, the throat and abdomen pale blue and the breast light green." (*Sharpe.*)

"*Nest.*—Nests in level sandy strips of ground. The tunnel is some 50 mm. in diameter at its mouth and at first runs sharply downward. When a depth of 60 to 90 cm. has been reached it turns and slopes gradually upward for 120 to 150 cm. of its length, ending in an enlarged chamber in which the eggs are deposited on the bare sand. The eggs are pure white and highly polished. They are frequently nearly spherical. They vary from 21 to 24 in length by 18 to 20 in breadth.

"Sometimes feeds singly, but is more usually found in small flocks, and at times very large flocks gather, apparently attracted by swarms

36; tarsus, 11; middle toe with claw, 20. Eight females, length, 267; of bees. Six males average, 282 in length; wing, 114; tail, 100; culmen, wing, 112; tail, 91; culmen, 34; tarsus, 11; middle toe with claw, 19." (*Bourns and Worcester MS.*)

304. MEROPS PHILIPPINUS Linnæus.

GREEN-HEADED BEEBIRD.

Merops philippinus LINNÆUS, Syst. Nat. ed. 12 (1766), **1**, 183; in errata; SHARPE, Cat. Birds Brit. Mus. (1892), **17**, 71; Hand-List (1900), **2**, 74; BLANFORD, Fauna Brit. Ind. Bds. (1895), **3**, 111, fig. 31 (head); MEYER and WIGLESWORTH, Bds. Celebes (1898), **1**, 253, pl. 8, fig. 2 (tail); MCGREGOR and WORCESTER, Hand-List (1906), 57; OATES and REID, Cat. Birds' Eggs (1903), **3**, 51.

Bantayan (*McGregor*); Basilan (*Steere Exp., Bourns & Worcester*); Bazol (*Everett*); Bohol (*Everett, McGregor*); Cebu (*Murray, Steere Exp., Bourns & Worcester, McGregor*); Guimaras (*Steere Exp.*); Leyte (*Everett*); Luzon (*Meyer, Everett, Steere Exp., Bourns & Worcester, Whitehead, McGregor*); Masbate (*Bourns & Worcester*); Mindanao (*Steere, Murray, Steere Exp., Bourns & Worcester*); Mindoro (*McGregor*); Negros (*Meyer, Steere, Steere Exp., Bourns & Worcester, Keay*); Panay (*Steere, Steere Exp., Bourns & Worcester*); Samar (*Bourns & Worcester*); Sibuyan (*McGregor*); Siquijor (*Steere Exp., Bourns & Worcester, Celestino*); Sulu (*Bourns & Worcester*); Tawi Tawi (*Bourns & Worcester*). Malay and Indian Peninsulas, Indo-Chinese Provinces, Ceylon, Celebes, Malayan islands.

Adult (*sexes alike*).—Above dark green mixed with a little dull chestnut; occasional touches of blue on head; rump and upper tail-coverts cerulean-blue; a narrow line of blue across forehead, ending on each side over posterior border of eye; a broad black band from nostril through eye to and including ear-coverts; chin light yellow; a wide chestnut band on throat; breast, sides, and abdomen green, mixed with ocherous-buff and touches of pale greenish blue; vent and under tail-coverts delicate sky-blue; wings and tail nearly as in *Merops americanus*. Iris red; bill, legs, and nails black. Length, with a full-grown tail, about 305. Measurements of three males from Luzon: Wing, 126 to 133; tail, without central pair of feathers, 89 to 93; bill from nostril, 35 to 36. Three females from Luzon: Wing, 124 to 125; tail, without long feathers, 89 to 91; bill from nostril, 31 to 33.

Young.—"Much duller in color generally, with the blue tail and rump of the adult, but without the blue eyebrow, this being replaced by a little lighter green shade than on the crown; cheeks pale green; throat pale brownish." (*Sharpe.*)

"We can not agree with Dr. Steere that *M. philippinus* feeds only singly or in pairs, having repeatedly seen it feeding in large flocks, and even in company with *M. americanus*.

"Iris red; legs and feet dark brown; nails and bill black. Six males average, 255 in length; wing, 122; tail, 94; culmen, 36; tarsus, 11;

middle toe with claw, 20. Eight females, length, 240; wing, 124; tail, 94; culmen, 35; tarsus, 11; middle toe with claw, 18." (*Bourns and Worcester MS.*)

Suborder CAPRIMULGI.

Ten primaries and ten rectrices; wing long and pointed; gape very wide; bill small and weak; legs and feet moderate and rather weak; middle toe-nail pectinate; toes with slight webs at base; plumage soft and mottled; in habits crepuscular and probably nocturnal, feeding largely on moths and large beetles. The two mottled eggs are deposited on the bare ground.

Family **CAPRIMULGIDÆ.**

Characters same as those given for the Suborder.

Subfamily CAPRIMULGINÆ.

Genera.

*a*¹. Rictus without conspicuous bristles; feathers on sides of occiput elongated, forming ear-tufts; larger, wing more than 250 mm............ **Lyncornis** (p. 342)

*a*². Rictus armed with strong bristles; no elongated feathers on head; smaller, wing less than 230 mm.. **Caprimulgus** (p. 344)

Genus LYNCORNIS Gould, 1838.

Similar to *Caprimulgus* but rictal bristles wanting; a conspicuous ear-tuft on each side of head; no large white spot on primaries.

305. LYNCORNIS MACROTIS (Vigors).

PHILIPPINE EARED NIGHTJAR.

Caprimulgus macrotis VIGORS, Proc. Zool. Soc. (1831), 97.

Lyncornis mindanensis TWEEDDALE, Proc. Zool. Soc. (1878), 945.

Lyncornis macrotis HARTERT, Cat. Birds Brit. Mus. (1892), **16**, 605; GRANT, Ibis (1894), 519; WHITEHEAD, Ibis (1899), 383; SHARPE, Hand-List (1900), **2**, 81; MCGREGOR and WORCESTER, Hand-List (1906), 57; MCGREGOR, Phil. Jour. Sci. (1907), **2**, sec. A, 284.

Basilan (*Bourns & Worcester, Celestino*); Luzon (*Lindsay, Möllendorff, Steere Exp., Whitehead, Celestino*); Mindanao (*Everett, Celestino*); Mindoro (*McGregor, Porter*).

Adult (*sexes alike*).—Head light chocolate-brown, very finely vermiculated with gray and buff; along middle of head and on ear-tufts a number of large black spots; lower feathers of ear-tufts pure black; a rusty collar on neck continued on sides of neck and connected with the white spot on each side of throat; sides of face and ear-coverts black, vermiculated with cinnamon; wings, coverts, and back variously mottled and splotched with black, ocherous-buff, and cinnamon; scapulars with large black terminal spots; primaries, secondaries, and lesser coverts black with dark cinnamon vermiculations; a few of the median coverts with buff spots on tips; rectrices black with a few irregular mottled bars of dark buff; feathers of lower parts black, on chin and crop with narrow cross-lines of cinnamon, on breast tipped with wide bands of dark buff, on abdomen and sides tipped with narrower bands of light buff; under tail-coverts largely buff with irregular black cross-lines. "Iris brown; bill clear brown, tip black; feet clear brown, their scales darker brown." (*Celestino.*)

Length of a male from Mindoro, 348; wing, 275; tail, 170; exposed culmen, 10; tarsus, 18; middle toe with claw, 29. Length of a female from Bataan Province, Luzon, 368; wing, 290; tail, 180; exposed culmen, 9; tarsus, 17; middle toe with claw, 29.

The crown is often largely rufous, again it may be ochraceous and the variations involve other portions of the plumage. The bars of the tail are variable, sometimes fairly regular and at other times much broken.

"We obtained a single male specimen of this fine goatsucker in Basilan. Iris very dark brown; bill black at tip, lighter at base; eyelids black; legs flesh-color, shading to dark brown on the toes; nails dirty grayish. Length, 343; wing, 276; tail, 223; tarsus, 16; middle toe with claw, 29; culmen, 13." (*Bourns and Worcester MS.*)

"If these two forms [*L. macrotis* and *L. mindanensis*], the types of which are before me, are really distinct species, then both occur in north Luzon, for out of four specimens of *Lyncornis* sent by Mr. Whitehead, three are typical *L. macrotis*, perfectly similar to Vigors's bird, and the fourth agrees perfectly with Tweeddale's types of *L. mindanensis*. Personally I am inclined to believe that the latter are merely younger examples of the same species. The darker head and shorter wing may be characteristic of youth, as it seems unlikely two closely allied forms should occur in the same locality." (*Grant.*)

Whitehead thus describes the habits of this species: "Fairly common in the lower valleys in the mountainous districts of north Luzon. This species has the pretty habit of its Malay cousin *L. temmincki*. Just at the last moment of the tropical day, when the highest heavens are tinged with the soft light of the setting sun, *Lyncornis* leaves its bed among the dead leaves and grass and flies high into the air, rising and descending with vertically held wings, uttering every now and then its pretty whistle, 'tet-a-bow, tet-a-bow.' But soon when the last rays have ceased to gild the sky, it descends to mother earth to feed on winged insects, its pretty note being then exchanged for a frog-like croak. Toward sunrise *Lyncornis* once more rises to the heavens and utters the same 'tet-a-bow,' but it shortly dives to the ground, and rests unseen until the evening light again tempts it from its concealment."

Genus CAPRIMULGUS Linnæus, 1758.

Wings long and pointed, first primary shorter than second; rictal bristles conspicuous, no ear-tufts on sides of head; males generally distinguished by having large white spots on wings and tail.

Species.

MALES.

a^1. White spot on first primary smaller and not reaching the shaft.
  b^1. White spot on outer rectrix subterminal .... **jotaka** (p. 349)
  b^2. White spot on outer rectrix terminal.
    c^1. Spot on outer rectrix on inner web only; spot on second primary not reaching the shaft .... **manillensis** (p. 346)
    c^2. Spot on outer rectrix involving both webs; spot on second primary reaching shaft on both webs .... **macrurus** (p. 348)
a^2. White spot on first primary larger and reaching the shaft .... { **griseatus** (p. 344) / **mindanensis** (p. 346)

FEMALES.

a^1. A large terminal white spot on tail.
  b^1. Larger, length about 290 mm.; a larger terminal white spot across both webs of outer rectrix; spot on first primary white and larger, on second primary extending to the shaft .... **macrurus** (p. 348)
  b^2. Smaller, length about 250 mm.; a smaller terminal white spot across inner web of outer rectrix; spot on first primary buff and smaller; on second primary not extending to the shaft .... **manillensis** (p. 346)
a^2. No terminal white spot on tail which is barred and mottled.
  b^1. Smaller; wing less than 180 mm.; spots on primaries much larger, whitish and unspeckled .... { **griseatus** (p. 344) / **mindanensis** (p. 346)
  b^2. Larger; wing more than 190 mm.; spots on primaries much smaller, buffy and speckled with brown .... **jotaka** (p. 349)

306. **CAPRIMULGUS GRISEATUS** Walden.

PHILIPPINE NIGHTJAR.

Caprimulgus griseatus WALDEN, Trans. Zool. Soc. (1875), **9**, pt. 2, 160; TWEEDDALE, Proc. Zool. Soc. (1877), 691; HARTERT, Cat. Birds Brit. Mus. (1892), **16**, 550; pl. 11; GRANT and WHITEHEAD, Ibis (1898), 245 pl. 6, fig. 7 (egg); CLARKE, Ibis (1900), 353; SHARPE, Hand-List (1900), **2**, 86; OATES and REID, Cat. Birds' Eggs (1903), **3**, 67; McGREGOR and WORCESTER, Hand-List (1906), 57; WORCESTER, Phil. Jour. Sci. (1907), **2**, sec. A, 271, pls. 1 & 2.

Catanduanes (*Whitehead*); Cebu (*McGregor*); Luzon (*Everett, Whitehead, McGregor*); Mindanao (*Goodfellow*); Mindoro (*McGregor, Porter*); Negros (*Keay*); Sibuyan (*Bourns & Worcester, McGregor*).

Adult male.—Upper parts finely vermiculated with blackish brown, pale buff, and gray, more heavily marked with blackish brown on top of head and on scapulars, some of the latter with wide edges of fulvous or buff on outer web; an obsolete collar of buff on hind neck; lower parts finely marked with blackish brown, buff, and whitish buff; a large white patch on each side of throat; some of the breast-feathers with rather large, pale buff, terminal spots; lower breast, flanks, and abdomen buff, rather narrowly barred with brown, less closely barred posteriorly; under tail-coverts very pale buff or white and unbarred; inner primaries, primary-coverts, and outer secondaries strongly barred with rich fulvous; first primary with a large white spot reaching shaft; second, third, and fourth primaries each with a buff-margined white spot crossing both webs and involving the included section of shaft; exposed portion of each of the two outer pairs of rectrices with a large terminal white area, a dusky wash near the tip; rectrices barred basally with buff and dark brown. A male from Mariveles measures: Length, 228; wing, 170; tail, 103; tarsus, 18; middle toe with claw, 25.

Adult female.—Differs from the male in lacking the terminal white area on tail-feathers which are barred and mottled with pale buff and dark brown; on the outer feather there is an ill-defined light buff area at tip of inner web. A female from Mariveles measures: Length, 228; wing, 164; tail, 100; tarsus, 18; middle toe with claw, 26.

Young.—Upper parts blackish brown, very finely vermiculated with white and lacking the black blotches and fulvous edges to scapulars which are present in the adult plumage; under parts about the same shade of gray as in the adult but more finely and more uniformly mottled and barred and without fulvous or buff spots on breast; white spots on throat just indicated; wings and tail similar to the adult.

Eggs.—Whitehead took two eggs of this species at Cape Engaño, Luzon. May 26, 1895, which he described as follows: "Shape elliptical oval; ground-color pale creamy white, with very pale lavender-gray under-markings and very pale brownish over-markings; the blotches and markings, none of which are very large, are unevenly distributed over the whole surface; measurements 31 by 22 mm. The eggs were placed on the sand just above high water mark among sea drift, which, in this instance, consisted of huge tree trunks. Both birds were seen and identified beyond doubt." (*Grant and Whitehead.*)

The gray nightjar appears to be confined to the vicinity of sandy or shingle beaches and while abundant in the localities where it has been discovered the species has been recorded from but few islands and the female and young have been but recently described. The description of the eggs was published two years before that of the female.

Clarke says with feeling that the female "is not an easy specimen to describe," but it is much easier to describe a single specimen than to write anything that will apply to the variations which occur in the species. In using the descriptions given above considerable allowance must be made for variation in the shade of buff or fulvous; this refers particularly to the scattered spots on breast, the broad edgings of scapulars, and the rusty bars on primaries, primary-coverts, and secondaries.

all of which vary from a light buff (even almost white on edges of scapulars) to rich fulvous. These variations are probably due to age, the parts becoming darker with successive molts. In two females from Mariveles, Luzon, the buff spot on first primary does not reach the shaft.

307. CAPRIMULGUS MINDANENSIS (Mearns).

MINDANAO NIGHTJAR.

Caprimulgus affinis mindanensis MEARNS, Proc. Biol. Soc. Wash. (1905), **18**, 85.

Caprimulgus mindanensis MCGREGOR and WORCESTER, Hand-List (1906), 57.

Mindanao (*Mearns*).

"*Adult male.*—Similar to *Caprimulgus affinis* but differing as follows: General coloration darker. Upper parts hair-brown, finely vermiculated and dotted with clove-brown, light gray, and black; scapulars marked with broken spots of cinnamon; first four primaries barred across their middle with pure white except the outer web of the first primary, this band varying from 12 to 24 mm. in width on the differing feathers, widest on the fourth; outer tail-feather white only on the terminal half, the basal half being cinnamon, clouded and irregularly cross-banded with brownish black, and the tips of both webs clouded with brownish black; second feather similar, but with much less of the dusky clouding at tip; lower abdomen and thigh-coverts cross-banded with pale sepia-brown; under tail-coverts and anal region buff, without cross-bands; upper third of tarsus feathered. Length of skin, 205; wing, 163; tail, 100; culmen, 8; tarsus, 19.

"Individuals vary greatly in the character and size of the punctate and vermiculate markings of the upper surface. The vague black cross-bands of the middle pair of tail-feathers are somewhat V-shaped (open apically), numbering about eight.

"In true *affinis*, adult males have the outer tail-feather all white, and the lower abdomen, thigh-coverts, and under tail-coverts 'uniform pale fulvous buff.' In *C. affinis griseatus* the bars are spread over the whole of the lower abdomen, thighs, and lower tail-coverts, and the color is more grayish rufescent than in *C. affinis mindanensis*, which appears to be closest to the form of *C. affinis* inhabiting Celebes." (*Mearns.*)

308. CAPRIMULGUS MANILLENSIS Walden.

MANILA NIGHTJAR.

Caprimulgus manillensis WALDEN, Trans. Zool. Soc. (1875), **9**, pt. **2**, 159; GRANT and WHITEHEAD, Ibis (1898), 246 (eggs); SHARPE, Hand-List (1900), **2**, 86; OATES and REID, Cat. Birds' Eggs (1903), **3**, 68, pl. 11, fig. 9; MCGREGOR and WORCESTER, Hand-List (1906), 57.

Caprimulgus manillensis HARTERT, Cat. Birds Brit. Mus. (1892), **16**, 544.

Tuc-ca-ró, Masbate and Ticao.

Bantayan (*McGregor*); Basilan (*Everett*); Bohol (*McGregor*); Cebu (*McGregor*); Luzon (*Cuming, Steere Exp., Whitehead, McGregor*); Masbate (*McGregor*); Mindanao (*Everett, Goodfellow*); Mindoro (*McGregor, Porter*); Negros (*Keay*); Palawan (*Platen*); Romblon (*McGregor*); Ticao (*McGregor*).

Male.—General coloration and pattern very much as in *C. macrurus;* post-auricular area and band on hind neck light buff; white area on throat divided, forming two patches; fore breast darker with no rufous; barring on abdomen and under tail-coverts broken, resulting from the larger light tips. The following characters are diagnostic; white spot on first primary washed with buff, small and reaching but half way to shaft; spot on second quill a little larger, not reaching shaft and a narrow line indicates spot on outer web; spots on third and fourth quills reaching shaft on both webs and on the fourth the included section of shaft nearly all white; outer pair of rectrices with white area about 32 mm. in length and on inner web only; second pair with white area across both webs. A male from Romblon measures: Length, 255; wing, 170; tail, 125; tarsus, 15; middle toe with claw, 24.

Female.—Spots on first and second primaries dark fulvous; spot on third primary not reaching shaft; otherwise like the male. A female from Romblon measures: Length, 255; wing, 167; tail, 115; tarsus, 15; middle toe with claw, 24.

Young.—Upper parts very much as in the adult, but the blackish brown spots on head and scapulars greatly reduced in size; as a whole the upper parts are dark silvery gray; white throat patches wanting, being indicated by two small buff areas; feathers of breast vermiculated with light brown and light buff with lighter buff tips; abdomen and flanks light fulvous, distinctly barred with brown; the partially developed wings and tail with markings as in the adult.

Eggs.—A set of two eggs collected May 22, 1895, by Whitehead near Cape Engaño, Cagayan Province, Luzon, are described as follows: "Shape elliptical oval; ground-color pale cream; under-markings pale lavender-gray; irregularly blotched over-markings pale brown, but darker than in *C. griseatus.* In one egg the over-markings are almost wanting, being reduced to one or two blotches. Measurements 29 mm. by 22." (*Grant and Whitehead.*)

The Manila nightjar is the most common species of its genus in the Islands and has a considerable vertical range, being found in the pine woods of Benguet Province as well as in the lowlands and near the sea. Its food consists largely of moths and beetles which it takes on the wing. During the day it rests in dark thickets and comes out to feed only after sunset. Its presence in a locality may be detected by hearing its peculiar note which has given it the Tagalog name "tucaroc."

309. CAPRIMULGUS MACRURUS Horsfield.

HORSFIELD'S NIGHTJAR.

Caprimulgus macrurus HORSFIELD, Trans. Linn. Soc. (1821), **13**, pt. 1, 142; HARTERT, Cat. Birds Brit. Mus. (1892), **16**, 537; SHARPE, Hand-List (1900), **2**, 87; MCGREGOR and WORCESTER, Hand-List (1906), 57; OATES and REID, Cat. Birds' Eggs (1903), **3**, 68, pl. 1, fig. 8.

Calamianes (*Bourns & Worcester, McGregor*); Palawan (*Whitehead, Steere Exp., Bourns & Worcester, Celestino*); Papuan Islands, northeastern Australia, Greater Sunda Islands, Java.

Male.—Forehead, crown, and nape grayish brown, finely vermiculated with buff and brown, producing a nearly silvery appearance; down the center of head to nape the feathers conspicuously marked with blackish brown; an indistinct fulvous band across hind-neck connecting with a bright fulvous patch on each side behind ear-coverts; back and rump mottled with dark brown and a little fulvous; a large white patch on throat, the longer feathers tipped with black, subterminally marked with fulvous; sides of face, ear-coverts, chin, and a small area posterior of white patch rich rufous with fine irregular black lines; lower throat rufous, mottled with black; breast finely marked with blackish brown and pale fulvous, a few feathers with large patches of fulvous; abdomen, flanks, and under tail-coverts barred with brown; wing-coverts blackish, each with a light fulvous terminal spot; scapulars with black terminal spots and narrow fulvous subterminal bars; white spot on first primary moderate and not reaching shaft; on second, third, and fourth the white crosses both webs; secondaries notched with dark rufous; tail-feathers blackish brown, outer webs notched with fulvous; two outer pairs each with a large white terminal area about 38 mm. long, involving both webs. A male from Puerto Princesa, Palawan, measures: Length, 265; wing, 180; tail, 140; tarsus, 16; middle toe with claw, 24.

"*Female.*—Differs from the adult male in having the outer web of first primary spotted with rufous, in having pale rufous marks on the primaries instead of white ones, in the white tips to the outer rectrices being less in extent and tinged with buff or rufous, speckled with brown on the tip of outer web.

"*Young.*—The markings are less developed in younger individuals; the young male has the white patches on the primaries and rectrices tinged with rufous and less in extent. The nestling is covered with buffy down." (*Hartert.*)

"Iris dark brown, bill nearly black; legs and feet brown; nails black. A male from Busuanga measures, 263 in length; wing, 184; tail, 135; culmen, 13; middle toe with claw, 22. A female from Palawan, length, 250; wing, 222; tail, 135; culmen, 13; tarsus, 14; middle toe with claw, 22." (*Bourns and Worcester MS.*)

310. CAPRIMULGUS JOTAKA Temminck and Schlegel.

JAPANESE NIGHTJAR.

Caprimulgus jotaka TEMMINCK and SCHLEGEL, Fauna Japonica, Aves (1847), 37, pl. 12; HARTERT, Cat. Birds Brit. Mus. (1892), **16**, 552; SHARPE, Hand-List (1900), **2**, 88; MCGREGOR and WORCESTER, Hand-List (1906), 57; OATES and REID, Cat. Birds' Eggs (1903), **3**, 74, pl. 1, fig. 14.

Calayan (*McGregor*); Palawan (*Bourns & Worcester, Celestino, White*). Northeastern Siberia, China, Japan, Indo-Chinese provinces; in winter to New Guinea, Malay Peninsula, Greater Sunda Islands.

"*Adult male.*—Above gray, finely penciled with brown, with broad black stripes along the top of the head, back, and rump; scapulars with velvety black centers or spots and buff or rufous-buff spots or bar-like markings; wing-coverts with roundish buff spots speckled with brown; some longitudinal buff spots on the hind neck; a golden buff spot on each side of neck, just behind ear-coverts; primaries deep blackish brown, outer webs with some minute rufous spots, inner web of first primary with a round white spot, not reaching shaft, a white band across both webs of next three; central pair of rectrices deep blackish brown, with broad pale grayish brown, dark speckled bars, the others with narrower bands, becoming more rufous on the outer ones, and all, except central pair, with a broad subterminal white bar; a white band across throat, interrupted at center and variegated on lower edge with ferruginous buff and blackish spots; throat pale rufous-buff with brown cross-markings; chest and upper breast pale grayish brown, with dark markings and some more or less developed larger buff spots; abdomen buff, barred with dark brown, the bars becoming broader and less numerous on lower tail-coverts which are sometimes nearly uniform; rictal bristles dark toward the base. Length, 279; wing, 203 to 221; tail, 140 to 147; tarsus, 16; feathered in front.

"*Adult female.*—Similar to the male, but a little smaller on the average; spots on primaries buff and speckled, band on second primary always interrupted; spots on throat buff; tail-feathers without a distinct white band.

"*Young.*—Young individuals are paler above and below, the dark markings less developed, and pervaded with a sandy rufous tinge; the young male shows already the white spots of the adult male, but they are shaded with buff and that on the second quill is a little interrupted." (*Hartert.*)

Worcester and Bourns took a male of this species in Palawan in December, 1891. It was 260 in length; wing, 212; tail, 128; culmen, 12; tarsus, 14; middle toe with claw, 22. The second Philippine specimen was shot by my assistant in Calayan Island, the last day of 1903. This specimen measures: Length, 260; wing, 210; tail, 127; tarsus, 15; middle toe with claw, 21. Bill and legs brown; nails black; the stomach contained several beetles and a large mantis.

The species appears to be a migrant from Asia and although not uncommon in Calayan we secured but one specimen. The male is distinguished from the other Philippine species by having a subterminal white tail-band; the female is distinguished from the females of *C. manillensis* and *C. macrurus* by the lack of a large white tail-spot and from *C. griseatus* by the much darker plumage and larger size.

Suborder MICROPODII.

Bill small and weak, the gape deeply cleft; rictal bristles not obvious; legs and toes small and weak; middle toe-nail not pectinate; tarsus very short; tail short to moderately long, either square or forked, and not reaching the tips of the folded wings. Diurnal in habits; eggs pure white, two in number; nest composed of sticks and moss, or else wholly or in part of a salivary secretion.

Families.

a^1. Culmen equal to tarsus or greater; tufts of elongated feathers above and below eye .... **Hemiprocniidæ** (p. 350)
a^2. Culmen decidedly less than tarsus; no elongated feathers anywhere on head. **Micropodidæ** (p. 351)

Family **HEMIPROCNIIDÆ.**

Swift-like; wings long and pointed, tail deeply forked; feet stout; tarsus shorter than middle toe without claw; colors largely blue and brown with a slight metallic gloss; plumage of the sexes dissimilar; at once distinguished from any nearly related family by the elongated white feathers above and below eye. Habits more flycatcher-like than swift-like.

Genus HEMIPROCNE Nitzsch, 1829.*

Characters same as those given for the Family.

311. **HEMIPROCNE MAJOR** (Hartert).

PHILIPPINE WHISKERED SWIFT.

Macropteryx comata Hartert, Cat. Birds Brit. Mus. (1892), **16**, 517 (part).
Macropteryx major Hartert, Novit. Zool. (1897), **4**, 11; Sharpe, Hand-List (1900), **2**, 89; McGregor and Worcester, Hand-List (1906), 58.

Basilan (*Steere Exp., Bourns & Worcester, McGregor*); Cebu (*Everett, Bourns & Worcester*); Guimaras (*Steere Exp.*); Luzon (*Meyer, Steere Exp., Bourns & Worcester, Whitehead, McGregor*); Marinduque (*Steere Exp.*); Masbate (*Bourns & Worcester*); Mindanao (*Steere, Everett, Steere Exp., Bourns & Worcester, Goodfellow*); Mindoro (*Steere Exp., Schmacker, McGregor, Porter*); Negros (*Steere,*

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* Cf. Oberholser, *Proc. Biol. Soc. Washington* (1906), **19**, 68.

Bourns & Worcester, Keay, Whitehead); Panay (*Steere Exp., Bourns & Worcester*); Samar (*Bourns & Worcester*); Sibutu (*Everett*); Sulu (*Guillemard, Bourns & Worcester*); Tablas (*Bourns & Worcester*); Tawi Tawi (*Bourns & Worcester*).

Adult male.—Lores deep black; ear-coverts chestnut; a broad white stripe from base of culmen, continued over eye and running out in elongated feathers to nape; a similar white line under ear-coverts, continued from the large white chin-patch; remainder of head and throat dark metallic blue; back, rump, upper tail-coverts, breast, and sides of body bronze-brown; middle of abdomen and under tail-coverts white; wings and tail dark metallic blue; innermost secondaries white. Iris dark brown; bill and legs black. A male from Mariveles, Luzon, measures: Wing, 140; tail, 80; tarsus, 6.

Adult female.—Like the male but ear-coverts metallic blue instead of chestnut. A female from Irisan, Benguet, Luzon, measures: Wing, 140; tail, 81; tarsus, 6.

"Curiously local in its habits. Perches in the same place day after day, taking short flights from time to time in pursuit of insects. The ground under its favorite perch is usually covered with excrement. Five males average, 148 in length; wing, 129; tail, 73; culmen, 6; tarsus, 7; middle toe with claw, 12. Two females are somewhat larger, measuring 160 in length; wing, 136; tail, 81; culmen, 6; tarsus, 7; middle toe with claw, 13." (*Bourns and Worcester MS.*)

Family **MICROPODIDÆ.**

Wing long, pointed, and when closed extending far beyond the end of tail; bill small and weak but gape very wide; legs and feet very small and weak; plumage mostly black or dark brown, slightly glossy, often with patches or mottlings of white; small birds capable of long continued flight; nests usually placed in caves or fastened to cliffs or houses; eggs two, white and unspotted. Certain species of the genus *Collocalia* vel *Salangana* make the edible nests of commerce and nest in great colonies. Birds of this family are wide ranging and one or more species may be expected to occur in any island of the Philippine group. Of the genera, *Tachornis* may be recognized by its deeply forked tail; *Chætura* by its sharp, stiff tail-feathers; *Collocalia* by its square, or nearly square, tail without spines; *Micropus* by its white throat and tail without spines.

Subfamilies.

a^1. Tarsi unfeathered or with a few feathers only; tail square or but slightly forked; toes arranged normally, three in front one behind. **Chæturinæ** (p. 352)

a^2. Tarsi distinctly feathered; tail decidedly or even deeply forked; all the toes directed forward .... **Micropodinæ** (p. 360)

Subfamily CHÆTURINÆ.

Genera.

a^1. Shafts of rectrices ordinary and without spinous tips; wing less than 140 mm. **Collocalia** (p. 352)

a^2. Shafts of rectrices stiff and extending in a sharp point beyond the web; wing more than 150 mm. .... **Chætura** (p. 357)

Genus COLLOCALIA Gray, 1840.*

Hind toe directed backward and only partially reversible; tail short, square or but slightly forked; shafts of rectrices normal, not extending beyond the webs. This genus includes numerous small swifts, several of which build the edible nests of commerce.

Species.

- a^1. Larger; wing, 115 mm. or more; under parts brown; no white on abdomen.
  - b^1. Without whitish or grayish band across rump.
    - c^1. Tail square; tarsi unfeathered .... **lowi** (p. 352)
    - c^2. Tail slightly forked.
      - d^1. Tarsi entirely devoid of feathers.
        - e^1. Above lighter and more brownish; below lighter, throat paler. **whiteheadi** (p. 353)
        - e^2. Above darker, and more blackish; below darker and more uniform. **origenis** (p. 353)
      - d^2. Tarsi sparsely feathered .... **fuciphaga** (p. 354)
  - b^2. A whitish or grayish band across rump .... **germani** (p. 355)
- a^2. Smaller; wing, 106 mm. or less; lower parts mottled with white; middle of belly extensively white.
  - b^1. A white band across the rump .... **troglodytes** (p. 355)
  - b^2. Without white band on rump.
    - c^1. Upper tail-coverts margined with white .... **marginata** (p. 356)
    - c^2. Upper tail-coverts concolorous with back .... **isonota** (p. 357)

312. COLLOCALIA LOWI (Sharpe).

LOW'S SWIFTLET.

Cypselus lowi SHARPE, Proc. Zool. Soc. (1879), 333.

Collocalia lowi HARTERT, Cat. Birds Brit. Mus. (1892), **16**, 498; SHARPE, Hand-List (1900), **2**, 89; OATES and REID, Cat. Birds' Eggs (1903), **3**, 75; OBERHOLSER, Proc. Acad. Nat. Sci. Philad. (1906), **58**, 190.

Salangana lowi MCGREGOR and WORCESTER, Hand-List (1906), 58.

Palawan (*Everett, Whitehead, Steere Exp.*). Northern Borneo, Anamba Islands, accidental in Sumatra and on Nias Island.

Adult.—"Upper surface sooty black with a little greenish gloss, somewhat purplish on the tail; lower surface brownish gray, with somewhat darker shaft-stripes; feathers in front of eye white, broadly tipped with black; under wing-coverts blackish. Length, about 127; bill at base, 5; wing, 135; tail, 51; nearly quite even; tarsus, 102; thinly but obviously feathered if not abraded by the string of the label." (*Hartert.*)

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* The name *Salangana* Saint-Hilaire, 1837, proposed by Richmond to replace *Collocalia*, proves to have been used in a vernacular sense and therefore is not available. Cf. Oberholser, *Proc. Acad. Nat. Sci. Philadelphia* (1906), **58**, 178.

Young.—Similar to the adult.

Everett found nesting colonies of Low's swiftlet in Palawan and in northern Borneo during the month of October; the nests were made of moss and were fastened to the walls of caves with dry saliva.

313. **COLLOCALIA WHITEHEADI** Grant.

WHITEHEAD'S SWIFTLET.

Collocalia whiteheadi GRANT, Ibis (1895), 459; SHARPE, Hand-List (1900), 2, 89; OBERHOLSER, Proc. Acad. Nat. Sci. Philad. (1906), **58**, 192.

Salangana whiteheadi MCGREGOR and WORCESTER, Hand-List (1906), 58.

Collocalia unicolor amelis OBERHOLSER, Proc. Acad. Nat. Sci. Philad. (1906), **58**, 193.

Bantayan (*McGregor*); Batan (*McGregor*); Bohol (*McGregor*); Cagayancillo (*McGregor*); Cebu (*McGregor*); Luzon (*Whitehead, McGregor*); Mindoro (*McGregor, Porter*); Sibuyan (*McGregor*); Palawan (*Whitehead, White*); Verde (*McGregor*).

Adult.—Similar to *Collocalia lowi* in coloration but slightly larger with the tail distinctly forked and the tarsi entirely devoid of plumes. Iris brown; bill and nails black; legs dark reddish brown. Measurements from ten skins of each sex from Irisan, Benguet Province, are: Males, wing, pressed flat against the rule, 119 to 125; tail, 46 to 51; depth of fork, 5 to 8. Females, wing, 118 to 125; tail, 48 to 56; depth of fork, 6 to 9.

Young.—Nestling: similar to the adult but more sooty above and lacking the green gloss; lower parts grayer. Iris dark brown; bill and nails black; legs pale flesh.

Nest.—In Benguet Province, Luzon, eggs and nestlings were found in June. The nests were made of green moss and placed in a water-worn cave. The eggs are pure white. Two specimens measure, respectively, 22.3 by 13.9 and 23.6 by 14.2.

314. **COLLOCALIA ORIGENIS** Oberholser.

MINDANAO SWIFTLET.

Collocalia origenis OBERHOLSER, Proc. Acad. Nat. Sci. Philad. (1906), **58**, 191.

Mindanao (*Mearns, Celestino*).

Adult.—"Upper surface uniform brownish black, the rump not lighter but wings and the distinctly forked tail more brownish, their feathers paler along the inner margins; entire ventral surface uniform smoky hair-brown, the throat not paler; sides of head and neck darker brown than the under parts; a blackish spot in front of the eye; lining of wing blackish brown.

"In its large size, deeply emarginate tail, and lack of tarsal feathering *Collocalia origenis* agrees with *Collocalia whiteheadi,* but is readily distinguishable by the dark colors, particularly on the upper parts which are even more blackish than in *Collocalia fuciphaga* from the Philippines."

Oberholser gives measurements of two males as follows: Wing, 129, 138; tail, 53, 60; exposed culmen, 6, 5.5; tarsus, 13, 14. Two females: Wing, 134, 130; tail, 51, 54; exposed culmen, 5.5; tarsus, 12.5, 14.

"This new species was discovered by Doctor Mearns during his recent trip to the Island of Mindanao, the four adults obtained having been brought by natives who had found them in a cave on Mount Apo." (*Oberholser.*)

315. COLLOCALIA FUCIPHAGA (Thunberg).

THUNBERG'S SWIFTLET.

Hirundo fuciphaga THUNBERG, K. Vet. Acad. Nya Handl., (1812), **33**, 153, pl. 4.

Collocalia fuciphaga HARTERT, Cat. Birds Brit. Mus. (1892), **16**, 498; SHARPE, Hand-List (1900), **2**, 89; OATES and REID, Cat. Birds' Eggs (1903), **3**, 75.

Salangana fuciphaga MCGREGOR and WORCESTER, Hand-List (1906), 58.

Collocalia fuciphaga fuciphaga OBERHOLSER, Proc. Acad. Nat. Sci. Philad. (1906), **58**, 185.

Cebu (*Steere Exp., Bourns & Worcester*); Luzon (*Whitehead, Bourns & Worcester, McGregor*); Mindoro (*Steere Exp., Bourns & Worcester, McGregor*); Negros (*Everett, Steere Exp., Whitehead*); Palawan (*Whitehead, Steere Exp.*); Panay (*Steere Exp., Bourns & Worcester*). Nias, Java, Borneo, Natuna Islands, Mariana and Caroline Islands, New Guinea, Duke of York, Friendly and Loyalty Islands.

Adult.—Very similar to *Collocalia whiteheadi* but the tarsi distinctly feathered. Hartert gives the following description and measurements: "Upper surface dark sooty brown with very little gloss; head, wings, and tail darker and more glossy; feathers in front of the eye whitish with dark brown tips; lower surface brownish gray with darker shaft-stripes; under wing-coverts blackish brown. Total length, about 114; bill at base, 4; wing, 112 to 119; tail, 56. The young bird is like the adult in plumage." (*Hartert.*)

"Two males measure, 120 in length; wing, 107; tail, 46; culmen, 6; tarsus, 7; middle toe with claw, 9. Two females: Wing, 116; tail, 48; culmen, 6; tarsus, 10; middle toe with claw, 7. Bill, feet, and nails black, legs light brown." (*Bourns and Worcester MS.*)

316. COLLOCALIA GERMANI Oustalet.

OUSTALET'S SWIFTLET.

Collocalia germani OUSTALET, Bull. Soc. Philom. Paris (1876), 1–3.
Collocalia francica HARTERT, Cat. Birds Brit. Mus. (1892), **16**, 503 (part); SHARPE, Hand-List (1900), **2**, 90 (part); OATES and REID, Cat. Birds' Eggs (1903), **3**, 76 (part).
Salangana francica MCGREGOR and WORCESTER, Hand-List (1906), 58.
Collocalia francica inexpectata MEARNS. Proc. Biol. Soc. Wash. (1905), **18**, 90.
Collocalia francica germani OBERHOLSER, Proc. Acad. Nat. Sci. Philad. (1906), **58**, 201.

Ca-li-pat'-pat, Cuyo; *sa-lin-ba-bá-tang*, Cagayancillo.

Cagayancillo (*McGregor*); Cagayan Sulu (*McGregor, Mearns*); Calamianes (*Bourns & Worcester, McGregor*); Cebu (*Steere Exp.*); Cuyo (*McGregor*); Negros (*Steere Exp.*); Panay (*Bourns & Worcester*). Mergui Archipelago; Tenasserim; Malay Peninsula; Siam; Candore Island; Cochin China.

Adult.—Similar to *Collocalia whiteheadi* but easily recognized by the whitish or smoky gray band across rump; shafts of rump-feathers darker; tarsi unfeathered.

Young.—Probably the young bird is much like the adult, as with other species of the genus.

"Four males from Culion measure, 112 in length; wing, 115; tail, 50; culmen, 5; tarsus, 9; middle toe with claw, 9. Iris dark brown; legs and feet light brown; bill and nails black." (*Bourns and Worcester MS.*)

317. COLLOCALIA TROGLODYTES Gray.

PYGMY SWIFTLET.

Collocalia troglodytes GRAY, Gen. Birds (1845), **1**, 55, pl. 19; HARTERT, Cat. Birds Brit. Mus. (1892), **16**, 507; SHARPE, Hand-List (1900), **2**, 90; OBERHOLSER, Proc. Acad. Nat. Sci. Philad. (1906), **58**, 202.
Salangana troglodytes MCGREGOR and WORCESTER, Hand-List, (1906), 59.

Bú-ta bú-ta and *sai-aó*, Bohol, also used for Salvadori's swiftlet.

Banton (*Celestino*); Bohol (*McGregor*); Cebu (*Bourns & Worcester, McGregor*); Guimaras (*Steere Exp., Bourns & Worcester*); Leyte (*Whitehead*); Luzon (*Jagor, Bourns & Wrocester*); Marinduque (*Steere Exp.*); Masbate (*Bourns & Worcester*); Mindanao (*Everett, Celestino*); Mindoro (*Bourns & Worcester*); Negros (*Steere Exp., Bourns & Worcester*); Palawan (*Whitehead, Platen, Bourns & Worcester, White*); Panay (*Steere, Bourns & Worcester*); Romblon (*Bourns & Worcester, McGregor*); Samar (*Bourns & Worcester*); Sibuyan (*Bourns & Worcester, McGregor*); Siquijor (*Bourns & Worcester, Celestino*); Ticao (*McGregor*).

Adult.—Above glossy black, bases of feathers smoky brown; across the rump a white band 5 mm. wide, the shaft of each feather dusky; chin and sides of face and neck dusky brown; feathers in front of eye white with dusky tips; feathers of throat, breast, and abdomen with white tips and dusky bases and shaft-lines, producing a mottled appearance, the white predominating on the abdomen; under tail-coverts glossy black.

"Very common throughout the Islands. Builds edible nests. Nests always in caves, and composed chiefly or entirely of secretion from the mouths of the birds. When the birds are persistently robbed, however, they seem to become discouraged, and mix in grass, stems of small plants, moss, etc. Two or three white eggs are deposited. They measure: 15.2 to 17.7 by 10.1 to 10.9. Fourteen males from Siquijor average, 92 in length; wing, 92; tail, 41; culmen, 4; tarsus, 8; middle toe with claw, 9. Bill, legs, and feet black." (*Bourns and Worcester MS.*)

318. **COLLOCALIA MARGINATA** Salvadori.

SALVADORI'S SWIFTLET.

Collocalia marginata SALVADORI, Atti. R. Acad. Sci. Torino (1882), **17,** 448; HARTERT, Cat. Birds Brit. Mus. (1892), **16,** 508; SHARPE, Hand-List (1900), **2,** 90; OBERHOLSER, Proc. Acad. Nat. Sci. Philad. (1906), **58,** 203.

Collocalia cebuensis KUTTER, Jour. für Orn. (1882), 171.

Salangana marginata MCGREGOR and WORCESTER, Hand-List (1906), 59.

Ni-do and *sa-lum-pi-ping-ao,* Calayan.

Babuyan Claro (*McGregor*); Banton (*Celestino*); Bohol (*McGregor*); Calayan (*McGregor*); Camiguin N. (*McGregor*); Cebu (*Koch, McGregor*); Luzon (*Othberg, McGregor*); Masbate (*Bourns & Worcester*); Mindoro (*McGregor*); Polillo (*Ickis* *); Sibuyan (*McGregor*); Tablas (*Celestino*).

Adult.—Above very dark glossy green, short upper tail-coverts margined with pure white; feathers in front of eye white with dusky tips; sides of head, neck, and chin mouse-gray; feathers of throat with narrow white edges, posteriorly the white edges gradually increase in width so that the abdomen is almost entirely white; under tail-coverts dark glossy green with narrow white margins; under wing-coverts narrowly edged with white. Iris, bill, toes, and nails black; tarsi dark flesh. Length, about 96. Five specimens of each sex from Calayan measure: Males, wing, 102 to 107; tail, 40 to 46; females, wing, 102 to 105; tail, 41 to 42.

Young.—Two nestlings from Sibuyan are like the adult in plumage except that the white edges to the upper tail-coverts are but just indicated. Bill and nails black; legs pale flesh.

Nest.—Nests in small colonies, fastening the nests to the face of a rock. The nest is composed of blackish brown hair-moss and held together by the characteristic glutenous saliva. The eggs do not differ from others of this genus being two in number and pure white in color. The eggs of a set collected in Sibuyan, June 11, 1904, measure 18.2 by 10.9 and 17 by 11.6 mm.

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* The late Mr. H. M. Ickis, geologist, Bureau of Science, found this species breeding in the Island of Polillo and collected nests and eggs as well as specimens of the bird.

This species has been very rare in collections; the only specimen in the British Museum in 1892 was a skin of doubtful locality collected by von Othberg. We have met with it on several islands; in Sibuyan and Calayan it was extremely abundant.

319. **COLLOCALIA ISONOTA** (Oberholser).

OBERHOLSER'S SWIFTLET.

Collocalia linchi SHARPE, Hand-List (1900), **2**, 90 (part); OATES and REID, Cat. Birds' Eggs (1903), **3**, 77 (part).
Salangana linchi MCGREGOR and WORCESTER, Hand-List (1906), 59.
Collocalia linchi isonota OBERHOLSER, Proc. Acad. Nat. Sci. Philad. (1906), **58**, 208.

Pi-ping-aú, Benguet.
Bongao (*Everett*); Luzon (*Whitehead, McGregor*); Mindanao (*Koch & Schadenberg*); Mindoro (*McGregor, Porter*).

Adult.—About the size of and very much like *Collocalia marginata* but without white margins to tail-coverts, and with more white on the abdomen.

Young.—The young bird resembles the adult in plumage but the tarsi are flesh-color.

Nest.—Composed of moss or lichens and placed on the ground in the protection of grass or ferns. Two eggs measure 22.3 by 13.9 and 21.5 by 13.9.

Genus CHÆTURA Stephens, 1826.

Size large, length 100 to 200 mm. or even more; shafts of tail-feathers very stiff and extending a short distance beyond the webs; claws strong and curved. Birds of this genus are very strong and steady in flight and usually feed high in the air.

Species.

a^1. Much larger; length, over 200 mm.; chin and throat black.
  b^1. No white spot on side of forehead .... **gigantea** (p. 357)
  b^2. A large white spot on each side of forehead.
    c^1. Under wing-coverts uniform dark brown .... **celebensis** (p. 358)
    c^2. Under wing-coverts edged with white .... **dubia** (p. 359)
a^2. Much smaller; length, less than 120 mm.; chin and throat white. **picina** (p. 359)

320. **CHÆTURA GIGANTEA** (Temminck).

GIANT SPINE-TAILED SWIFT.

Cypselus giganteus TEMMINCK, Pl. Col. (1825), 364.
Chætura gigantea HARTERT, Cat. Birds Brit. Mus. (1892), **16**, 475; SHARPE, Hand-List (1900), **2**, 91; MCGREGOR and WORCESTER, Hand-List (1906), 59.

Calamianes (*Worcester, Celestino*); Palawan (*Whitehead, Platen, Steere Exp., Bourns & Worcester, Celestino, White*). Sumatra, Malay Peninsula, Java, Borneo.

Adult.—Forehead, crown, nape, sides of head and neck, wings and tail black with very dark steel-blue gloss; lores deep black; remainder of plumage deep smoky brown, except under tail-coverts and a patch on lower flank which are white; shafts of under tail-coverts dark brown. A male from Palawan measures: Length, 239; wing, 203; tail, 67; exposed culmen, 10; tarsus, 17. A female from Culion measures: Length, 229; wing, 200; tail, 68; exposed culmen, 9; tarsus, 16.

Worcester and Celestino collected a large series of giant swifts in Culion and Palawan. I have seen large swifts in Benguet Province and in Calayan, and Worcester observed a large flock in northern Luzon which may have been either *C. gigantea* or *C. dubia.*

321. CHÆTURA CELEBENSIS (Sclater).

CELEBES SPINE-TAILED SWIFT.

Chætura gigantea var. *celebensis* SCLATER, Proc. Zool. Soc. (1865), 608.

Chætura celebensis HARTERT, Cat. Birds Brit. Mus. (1892), **16**, 467; MEYER and WIGLESWORTH, Bds. Celebes (1898), **1**, 329, pl. 12; SHARPE, Hand-List (1900), **2**, 91; CLARKE, Ibis (1894), 533; MEARNS, Proc. Biol. Soc. Wash. (1905), **18**, 185; MCGREGOR and WORCESTER, Hand-List (1906), 59.

Basilan (*Mearns*); Negros (*Keay*). Celebes.

Adult.—"Deep steel-blue, back and rump with purple gloss; two white spots on the sides of the forehead; sides of the abdomen and under tail-coverts white. In size similar to *C. gigantea.*" (*Hartert.*)

Clarke gives the following notes on a specimen obtained in Negros: "The back is an admixture of dark brown, or brownish black, and deep steel-blue, each feather having a broad subterminal band of blue with an edging of dark brown, which conceals the blue to a considerable extent, so that the brown predominates. The tail and secondaries are glossed with green and blue in about equal proportions. Length, 241; wing, 216; tail, 73; tarsus, 18."

"*Female.*—A specimen in the Sarasin Collection marked '♀ juv.' (but we can not see any signs of immaturity) answers to Mr. Hartert's description of the species, except that the lores are reddish brown not white. Wing, 208; tail, 63; tarsus, 16; bill from nostril, 6." (*Meyer and Wiglesworth.*)

Mearns gives the following measurements of two males from Basilan: "Length, 240, 255; wing, 215; tail, 75; bill from frontal feathers (chord), 8.5, 9.6; bill from anterior margin of nostril, 6.1, 7.1; tarsus, 19, 20; middle toe with claw, 22.5."

But six specimens of this large swift are known, three from Celebes, one from Negros, and two from Basilan.

322. **CHÆTURA DUBIA** McGregor.

PHILIPPINE SPINE-TAILED SWIFT.

Chætura dubia McGregor, Bur. Govt. Lab. Manila (1905), **34**, 15, pl. 12: McGregor and Worcester, Hand-List (1906), 59.

Mindoro (*McGregor*).

Adult.—General color blackish brown; back and rump noticeably lighter, being light seal-brown, each feather with a subterminal, more or less concealed area or band of bluish violet; head and body shot with bluish violet gloss, strongest on chin, throat, breast, and sides of head and neck; a large white patch on each side between nostril and lores; crissum white, each feather blackish brown at its base, the long tail-coverts with edges also blackish brown except near tip; extending diagonally upward and forward on each flank, a wide white stripe connected with the white crissum behind as in *Chætura gigantea;* exposed edges of wing-feathers black, inner webs of primaries largely light brown; inner webs of alula, primary- and secondary-coverts shot with greenish blue gloss; tertiaries greenish blue; lining of wing brown, each feather bordered with dirty white which has its greatest extent on innermost feather; axillars dark brown, shot with bluish violet gloss, exposed portion of tail blackish, the concealed basal portion glossed with green and blue. Bill black; iris brown; legs and feet reddish flesh; nails light brown.

Male: Length, 229; wing, 220; tail, 64; bill from frontal feathers, 10; bill from anterior margin of nostril, 7; tarsus, 18. Female: Length, 234; wing, 218; tail, 64; bill from frontal feathers, 10; bill from anterior margin of nostril, 7; tarsus, 18.

This fine species is known from the type specimens, a pair taken on the Baco River, Mindoro. It requires comparison with *Chætura celebensis.* The following notes probably refer to *Chætura dubia:*

"We think it probable that *C. gigantea* will eventually be found in Mindoro. We repeatedly saw a very large swift in that island, but it always kept well out of range. We thought it to be *C. gigantea* but could not, of course, be at all sure. On our first trip we found *C. gigantea* flying low over the mangrove swamps in Palawan and had no special difficulty in securing specimens. On our second trip, however, we were less fortunate, as the few individuals that we saw kept out of range." (*Bourns and Worcester MS.*)

323. **CHÆTURA PICINA** Tweeddale.

TWEEDDALE'S SPINE-TAILED SWIFT.

Chætura picina Tweeddale, Proc. Zool. Soc. (1878), 944, pl. 59; Hartert, Cat. Birds Brit. Mus. (1892), **16**, 487; Sharpe, Hand-List (1900), **2**, 92; McGregor and Worcester, Hand-List (1906), 59.

Leyte (*Whitehead*); Mindanao (*Everett*).

Adult.—"Black with a blue gloss, greenish in some lights; chin, throat, and larger under wing-coverts pure white. Wing, 161; tail, 32." (*Tweeddale.*) "Iris dark brown; bill black; legs lead-gray." (*Whitehead.*)

This species is known only from the type, a female collected near Zamboanga, Mindanao, and from three specimens taken in Leyte by Whitehead.

Subfamily MICROPODINÆ.

Genera.

a^1. Smaller; toes all directed forward, but in pairs, two toes on each side of the median tarsal line; plumage nearly uniform brown............ **Tachornis** (p. 360)
a^2. Larger; toes all directed forward and at equal intervals; chin, throat, and rump white .... **Micropus** (p. 361)

Genus TACHORNIS Gosse, 1847.

Toes all directed forward, in pairs, two toes on each side of the median tarsal line, none of them reversible; tail deeply forked, its feathers narrow; plumage nearly uniform in color without white markings.

324. TACHORNIS PALLIDIOR McGregor.

PALER PALM SWIFT.

Tachornis infumatus McGregor, Bull. Philippine Mus. (1903), **1**, 5.
Tachornis pallidior McGregor, Bur. Govt. Lab. (1904), **25**, 27; McGregor and Worcester, Hand-List (1906), 59.

Bohol (*McGregor*); Cebu (*McGregor*); Luzon (*McGregor*); Mindanao (*Celestino*); Ticao (*McGregor*).

Adult.—Upper parts dark brown; nearly black on head, neck, and back which have a faint green gloss; feathers of rump and upper tail-coverts lighter brown and narrowly fringed with gray in unworn plumage, the tail-coverts with dark shafts; wing-feathers blackish brown, glossy on outer webs; short primaries narrowly edged with white on inner webs; tail of the same color as wings; sides of head brown; chin and throat light drab-gray, merging gradually into the dark drab-gray of the lower breast and abdomen where the feathers are narrowly edged with whitish; stiff feathers in front of eye white with brown tips. Length in flesh, 114; wing, 119; lateral rectrices, 50; central rectrices, 31.

This species is easily recognized by the deeply-forked tail and peculiar paired toes; it is a near relative of *Tachornis infumata* from which it differs chiefly in having a paler chin and throat. It has been found in small numbers in the islands from which it is recorded.

Genus MICROPUS Meyer and Wolfe, 1810.*

Tarsus well feathered in front; outer toes more or less reversible; claws strong; tail decidedly forked; rectrices pointed but not stiff; nostril opening oval with a median septum which is not plainly seen in the dry specimen.

Species.

a^1. Larger; wing, more than 160 mm.; feathers of breast tipped with white. **pacificus** (p. 361)

a^2. Smaller; wing, less than 150 mm.; feathers of breast uniform blackish. **subfurcatus** (p. 362)

325. MICROPUS PACIFICUS (Latham).

WHITE-RUMPED SWIFT.

Hirundo pacifica LATHAM, Index Orn. Suppl. (1801), 58.

Micropus pacificus HARTERT, Cat. Birds Brit. Mus. (1892), **16**, 448.

Cypselus pacificus SHARPE, Hand-List (1900), **2**, 96; MCGREGOR, Phil. Jour. Sci. (1907), **2**, sec. A, 339 and 346, pls. 4 & 5, fig. 1; OATES and REID, Cat. Birds' Eggs (1903), **3**, 81.

Batan (*McGregor*, *Mearns*); Camiguin N. (*McGregor*). Eastern Siberia, China, Japan, Formosa, Burmese provinces, Assam, Manipur; in winter to Australia.

Adult.—General color blackish brown; a broad rump-band white, its feathers with brown shafts; upper parts with a slight oil-green gloss; loral feathers white with black tips; chin and throat white with narrow dusky shaft-lines; sides of head and neck light dingy brown; under parts and under wing-coverts brown, each feather with a wide white fringe and a deep brown subterminal band; under tail-coverts narrowly fringed with white. Iris brown; bill and nails black; feet blackish brown. Length, 184 to 190. A male measures: Wing, 182; tail, 77; depth of fork, 29; bill from frontal feathers, 7. A female measures: Wing, 178; tail, 77; depth of fork, 29; bill from frontal feathers, 8.

This handsome swift was observed in large numbers on Batan Island and all of our specimens were killed within the town of Santo Domingo de Basco. Near the summit of Mount Araya (1,160 meters) numbers of these birds were seen in their graceful and powerful flight.

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* Some authors prefer *Apus* Scopoli, 1777, for this genus; Dr. Sharpe uses *Cypselus* Illiger, 1811. Cf. Hartert, Das Tierreich (1897), **1**, 83; Sharpe, Hand-List, (1900), **2**, (introduction); Allen, *Auk* (1901), **18**, 121.

326. MICROPUS SUBFURCATUS (Blyth).

LESSER WHITE-RUMPED SWIFT.

Cypselus subfurcatus BLYTH, Jour. As. Soc. Beng. (1849), **18**, 807; BLANFORD, Fauna Brit. Ind. Bds. (1895), **3**, 169; SHARPE, Hand-List (1900), **2**, 96; OATES and REID, Cat. Birds' Eggs (1903), **3**, 82; McGREGOR, Phil. Jour. Sci. (1907), **2**, sec. A, 346, pls. 4 & 5, fig. 2.
Micropus subfurcatus HARTERT, Cat. Birds Brit. Mus. (1892), **16**, 456.

Camiguin N. (*McGregor*). Northeastern Bengal, Indo-Chinese provinces, southern China, Malay Peninsula, Sumatra, Java, Borneo.

Adult.—Very similar to *Cypselus pacificus* but much smaller; under parts darker, more blackish brown and the feathers without white fringes.

"Bill black; iris dark brown; legs and feet varying from deep purplish black to flesh-color. Length, about 146; tail, 51; wing, 140; tarsus, 10; outer rectrices, 7, longer than middle pair." (*Blanford.*)

A female from Camiguin, north of Luzon, measures: Wing, 136; tail, 52; depth of fork, 8; bill from frontal feathers, 7.

The only known Philippine specimen was shot from a flock of *Micropus pacificus* on Camiguin Island, north of Luzon.

Order TROGONES.

TROGONS.

First and second toes reversed; the other two toes united for two-thirds of their length.

Family TROGONIDÆ.

Bill short, strong, and wide; culmen curved; a notch at tip of upper mandible; nostrils covered by well-developed bristles; face partly naked; wings short and curved to the body; first primary about one-half of fifth which is longest; tail long and broad, square at the end; two outer pairs of rectrices short; legs short, tarsus partly feathered; plumage full and soft; skin very thin and tender.

Genus PYROTROGON Bonaparte, 1854.

Characters same as those given for the Family.

327. PYROTROGON ARDENS (Temminck).

PHILIPPINE TROGON.

Trogon ardens TEMMINCK, Pl. Col. (1826), 404.
Harpactes ardens GRANT, Cat. Birds Brit. Mus. (1892), **17**, 487.
Pyrotrogon ardens SHARPE, Hand-List (1900), **2**, 150; McGREGOR and WORCESTER, Hand-List (1906), 60.

Basilan (*Steere, Steere Exp., Bourns & Worcester, McGregor*); Bohol (*McGregor*); Dinagat (*Everett*); Leyte (*Whitehead*); Luzon (*Meyer, Möllendorff, Steere Exp., Whitehead, Bourns & Worcester, McGregor*); Marinduque (*Steere

Exp.); Mindanao (*Peale, Murray, Everett, Koch & Schadenberg, Steere Exp., Bourns & Worcester, Goodfellow, Celestino*); Samar (*Steere Exp., Bourns & Worcester, Whitehead*).

Adult male.—Above orange-brown, lighter on rump and tail-coverts; lores and forehead black, shading gradually into deep reddish purple on top of head, occiput, nape, and ear-coverts; chin and throat black, shading into pink on the chest; upper breast deep scarlet, shading into lighter scarlet on rest of under parts; wings black; primaries edged with white; secondaries and secondary-coverts barred with narrow lines of white; three outer pairs of tail-feathers white with black bases; next two pairs black; middle pair light coffee-brown with black tips. Bill dark green at base; terminal half bright yellow. A male from Bohol measures: Wing, 145; tail, 181; culmen from base, 24; bill from nostril, 15. A male from Bataan Province, Luzon, measures: Wing, 143; tail, 173; culmen from base, 20; bill from nostril, 14. A male from Basilan measures: Wing, 150; tail, 187; culmen from base, 24; bill from nostril, 17.

Adult female.—Above similar to the male but head, nape, and ear-coverts olive with no trace of vinaceous color; scapulars and back olive-brown; rump and tail-coverts orange-brown as in the male; chin and throat black; rest of under parts light rusty buff, a little paler on abdomen and darker on under tail-coverts; wings similar to those of the male but the fine cross-bars light brown instead of white; tail similar to that of the male but with less white on the outer feathers. A female from Bohol measures: Wing, 135; tail, 176; culmen from base, 24; bill from nostril, 16.

Young.—The young male resembles the adult female but the brown bars on the secondaries are much wider and the black terminal bar of the middle rectrices is lacking. As the bird becomes older the vinaceous of head, and pink and scarlet of under parts, gradually appear.

"Abundant from Luzon to Basilan. Usually found in dark places in the forest. Makes a loud whirr with its wings when it flies. A stupid bird, easily shot. Five males measure, 327 in length; wing, 132; tail, 167; culmen, 21; tarsus, 15; middle toe with claw, 23. Iris dark brown to black; legs and feet olive; nails black; base of bill green, tip yellow; flesh round eye purple." (*Bourns and Worcester MS.*)

Order **COCCYGES.**

CUCKOOS.

Bill stout, culmen curved, neither cered nor hooked; tail-feathers ten in number, usually long, broad, and not noticeably stiffened; outermost pair of rectrices much shorter than the others; first and fourth toes directed backward; front toes free. Nesting habits variable, some species are parasitic, while others build bulky nests and raise their young in the normal manner.

Suborder CUCULI.

Family **CUCULIDÆ.**

Characters same as those given for the Order.

Subfamilies.

a^1. Wing longer and flatter, less curved to the body; distance from tip of wing to tip of secondaries greater than culmen or tarsus.................. **Cuculinæ** (p. 364)

a^2. Wing shorter, more rounded and curved to the body; distance from tip of wing to tip of secondaries less than either culmen or tarsus.

b^1. Hind claw long and straight, lark-like.............................. **Centropodinæ** (p. 380)

b^2. Hind claw short and curved.. **Phœnicophainæ** (p. 387)

Subfamily CUCULINÆ.

*Genera.**

a^1. With a long crest; tarsus almost naked.................................... **Clamator** (p. 364)

a^2. Without a crest; tarsus more or less feathered at base.

b^1. Secondaries shorter, in closed wing, scarcely exceeding half the length of primaries .... **Cuculus** (p. 370)

b^2. Secondaries longer, in closed wing, equaling two-thirds the length of primaries or more.

c^1. Plumage never entirely black; bill at nostril wider than deep, or at least not deeper than wide.

d^1. Larger, length 300 mm. or more; plumage banded or barred, hawk-like in both sexes.. **Hierococcyx** (p. 368)

d^2. Smaller, length 250 mm. or less.

e^1. Tail slightly forked, outer feather short; plumage black with a white bar on inner webs of primaries................................ **Surniculus** (p. 365)

e^2. Tail rounded; plumage never black.

f^1. Larger; tail, about 120 mm.; plumage rather dull, never metallic bronze nor violet.

g^1. Young and adult differently colored; bill compressed; tail-feathers of the same length throughout..................... **Cacomantis** (p. 374)

g^2. Young and adult similar; bill stout, not compressed; tail-feathers narrower near their tips............................ **Penthoceryx** (p. 373)

f^2. Smaller; tail, about 75 mm.; plumage bright metallic bronze or violet; abdomen strongly barred with white.

Chalcococcyx (p. 375)

c^2. Plumage entirely black in the male, barred in the female, with ten or more buff bars on the tail; length, 250 mm. or more; bill at nostril decidedly deeper than wide.. **Eudynamys** (p. 377)

Genus CLAMATOR Kaup, 1829.

A pointed occipital crest; wing short and rounded, primaries extending but little beyond the secondaries; tail much longer than wing; tail-feathers graduated; sexes similar in color.

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* The young in several genera are more or less barred and can not be determined by this key; the females in the genus *Eudynamys* have the entire plumage barred and spotted.

328. **CLAMATOR COROMANDUS** (Linnæus).

CRESTED CUCKOO.

Cuculus coromandus LINNÆUS, Syst. Nat. ed. 12, (1766), **1**, 171.
Coccystes coromandus SHELLEY, Cat. Birds Brit. Mus. (1891), **19**, 214; SHARPE, Hand-List (1900), **2**, 155; OATES and REID, Cat. Birds' Eggs (1903), **3**, 103, pl. 2, fig. 4; MCGREGOR and WORCESTER, Hand-List (1906), 60.

Mindanao (*Everett*); Palawan (*Bourns & Worcester*); Siquijor (*Bourns & Worcester*). Malay and Indian Peninsulas, Burmese countries, southern and central China, Ceylon, Sumatra, Java, Borneo, Celebes.

"*Adult male.*—Entire upper half of head black, strongly glossed with blue on the crest; across the back of the neck a clear white collar; back black, strongly glossed with greenish blue, and passing into glossy olive-green on the scapulars and inner portion of wings; remainder of wings chestnut, with brown ends to the quills; tail glossy violet-black, most of the feathers, especially the outer ones, partially tipped with white; throat chestnut-buff; chest buffy white; flanks, abdomen, and thighs grayish ash, passing into violet-black on under tail-coverts; under surface of wings chestnut, fading into buff towards the least coverts, and into brown at the ends of the quills. 'Iris dark brown; bill black, with the pale basal portion of lower mandible light gray; legs, feet, and claws slaty blue.' (*Darling.*) Length, 406; culmen, 28; wing, 173; tail, 254; tarsus, 25.

"*Adult female.*—Similar in plumage to the male, but smaller. Length, 381; culmen, 30; wing, 155; tail, 229; tarsus, 25. Colonel Legge states that the female bird is larger than the male, but this is not borne out by the series in the [British] museum.

"*Nestling.*—Differs from the adult in having most of the feathers of the upper parts tipped with rufous, the collar being shaded with rufous; the tail-feathers broadly tipped with pale sandy buff; the throat buffy white like the chest, and the under tail-coverts rufous-buff. Length, 350; wing, 160." (*Shelley.*)

"Apparently a stranger in the Philippines. A single specimen was obtained by Everett in Mindanao. We obtained one specimen in Siquijor, and another in Palawan. No other example was met with on our trip. The Palawan specimen, a female, measures, 375 in length; wing, 153; tail, 219; culmen, 30; tarsus, 30; middle toe with claw, 29. Iris dark brown; legs, feet, and nails slaty blue; bill black, pale at base of lower mandible." (*Bourns and Worcester MS.*)

Genus SURNICULUS Lesson, 1831.

Length, about 215 mm; plumage almost entirely black; tail nearly square, tips of the feathers turned outward giving the tail a forked appearance like that of a drongo (*Dicrurus*); outer pair of feathers much shorter than the rest.

Species.

a^1. Tail longer, about 120 mm.; head, neck, and back with a light oil-green gloss. **lugubris** (p. 366)

a^2. Tail shorter, about 100 mm.; head, neck, and back blue-black without gloss. **velutinus** (p. 367)

329. SURNICULUS LUGUBRIS (Horsfield).

GLOSSY DRONGO CUCKOO.

Cuculus lugubris HORSFIELD, Trans. Linn. Soc. (1821), **13**, pt. 1, 179.
Surniculus lugubris SHELLEY, Cat. Birds Brit. Mus. (1891), **19**, 227; SHARPE, Hand-List (1900), **2**, 156; OATES and REID, Cat. Birds' Eggs (1903), **3**, 104; MCGREGOR and WORCESTER, Hand-List (1906), 60.

Balabac (*Everett*); Palawan (*Everett, Whitehead, Platen, Steere Exp., Bourns & Worcester, Celestino, White*). Southern China, Malay and Indian Peninsulas, Burmese provinces, Ceylon, Java, Sumatra, Borneo.

Adult male.—Black; wings, upper and under tail-coverts, and tail glossed with dark green; head, neck, back, and under parts glossed with blue; a few hidden white feathers on occiput; a patch of white feathers on each thigh; under tail-coverts narrowly barred and tipped with white; a large white spot on inner web of first primary; a diagonal white bar across inner webs of inner primaries; outermost tail-feathers incompletely barred and tipped with white; outer webs of three or four outer tail-feathers narrowly edged with white near base. "Bill, legs, and claws black; gape and inside of mouth orange-red; iris brown." (*Shelley.*) Length, 240; wing, 130; tail, 122; culmen from base, 24.

Adult female.—Similar to the male. Wing, 120; tail, 112; culmen from base, 21.

"*Immature.*—Slightly less glossy, of a more violet shade, and with clear white terminal spots to many of the feathers irregularly dispersed over the plumage; under wing-coverts irregularly barred with white, and the white bar across the quills broader than in the adult; the tail rather more barred with white, the white bars being much more distinct on the outer feathers, and the penultimate ones partially barred near their quills, and all the feathers with white spots at their tips.

"This species varies considerably in the shape of the tail which is sometimes very much forked, with the long feathers curved outwards towards their ends, but is sometimes square, the outer feather on each side being always short. The white of the nape is often absent, and the amount of the white spotting of the upper tail-coverts varies greatly. The most constant characters are the white spot and bar on the under surface of the quills, the bars on the under tail-coverts, and the bars on the outer tail-feathers, the latter varying in amount according to age. The immature bird, *Cuculus albopunctatus* Drap. has white spots which vary in number and size, the last to disappear with age being those at the ends of the tail-feathers. * * *." (*Shelley.*)

"A single male from Palawan measures, 229 in length; wing, 119; tail, 120; culmen, 23; tarsus, 15; middle toe with claw, 19." (*Bourns and Worcester MS.*)

330. SURNICULUS VELUTINUS Sharpe.

PHILIPPINE DRONGO CUCKOO.

Surniculus velutinus SHARPE, Trans. Linn. Soc. Zool. (1877), **1**, 320: SHELLEY, Cat. Birds Brit. Mus. (1891), **19**, 230; BOURNS and WORCESTER, Minnesota Acad. Nat. Sci. Occ. Papers (1894), **1**, 49; SHARPE, Hand-List (1900), **2**, 156; MCGREGOR and WORCESTER, Hand-List (1906), 60.

Basilan (*Steere, Everett, Steere Exp., Bourns & Worcester, McGregor*); Luzon (*Bourns & Worcester, Whitehead*); Mindanao (*Everett, Bourns & Worcester, Celestino*); Mindoro (*McGregor*); Negros (*Whitehead*); Samar (*Bourns & Worcester, Whitehead*); Sulu (*Bourns & Worcester*); Tawi Tawi (*Everett, Bourns & Worcester*).

"*Adult.*—Very closely allied to *S. lugubris;* tail always square, with the exception of the outer pair of feathers, which are much shorter; it differs in having the head, back, throat, and breast velvety black, with absolutely no trace of white on any of the tail-coverts, and a distinct narrow white basal edging to the tail-feathers. 'Iris dark chocolate-brown; bill and claws black; feet bluish gray.' (*Everett.*) Length, 203; culmen, 23; wing, 119; tail, 109; tarsus, 14. The sexes are similar in plumage." (*Shelley.*)

"*Immature.*—A young bird from Basilan, two-thirds grown, is light rusty brown in color, lightest on under surface; crown and nape show metallic blue-black feathers; one of the scapulars, many feathers of rump, and all of tail same color, mostly tipped with rusty brown; wing-coverts rusty brown with faint dark shaft-markings appearing; upper surface of wing black, faintly metallic, all the feathers edged with rusty brown; under surface of body uniform light brown; wing-coverts white strongly washed with brown at tips; white spot on inner webs of primaries appearing; under surface of tail dull metallic blue, each feather with several spots of white.

"A bird nearly grown shows numerous brown feathers on head and back. Primaries washed with rusty brown, primary-coverts uniform brown. Throat, chin, and upper breast nearly black. A third has general color of adult but some feathers of head, nape, primary-coverts, breast and abdomen as well as tips of some of the secondaries are washed with rusty brown." (*Bourns and Worcester.*)

"Abundant in Basilan; not uncommon in Tawi Tawi and Sulu. Found in the forest, or in second growth. Five males average, 215 in length; wing, 116; tail, 110; culmen, 23; tarsus, 15; middle toe with claw, 21. Five females, length, 212; wing, 115; tail, 106; culmen, 23; tarsus, 15; middle toe with claw, 20. Bill and nails black; iris black to leaden; food insects." (*Bourns and Worcester MS.*)

Genus HIEROCOCCYX S. Müller, 1839–44.

Superficially this genus resembles *Cuculus* but differs by its comparatively shorter primaries and longer secondaries. In plumage and flight these cuckoos mimic the smaller Accipitrine hawks, and this probably protects them from the attacks of the larger hawks and owls.

Species.

a^1. Breast with distinct blackish brown bars, tip of tail white; wing, 200 mm. or more .... **sparverioides** (p. 368)
a^2. Breast without bars; tip of tail rufous; wing, 180 mm. or less.... **fugax** (p. 369)

331. HIEROCOCCYX SPARVERIOIDES (Vigors).

ASIATIC HAWK CUCKOO.

Cuculus sparverioides VIGORS, Proc. Zool. Soc. (1831), 173.
Hierococcyx sparverioides SHELLEY, Cat. Birds Brit. Mus. (1891), 19, 232.
Hierococcyx sparveroides SHARPE, Hand-List (1900), 2, 157; MCGREGOR and WORCESTER, Hand-List (1906), 61.

Calamianes (*Bourns & Worcester*); Luzon (*McGregor*); Negros (*Whitehead*); Palawan (*Platen*). Malay and Indian Peninsulas, Burmese provinces, eastern Siberia, Japan, China, Borneo.

"*Adult.*—Above brown with a bronzy gloss, changing gradually into gray on the back of the neck and crown; the outer tail-coverts barred with white, and the longest ones often with darker ends and narrow pale edges; tail with about five distinct dark bars and narrow pale tips to the feathers, seldom much shaded with rufous; sides of the head and chin gray, with a broad white band from the front of the eye to the white on the throat, separating the gray of the head from the chin; upper throat white, changing on the lower throat and front of the chest into rufous, and the whole mottled with pale gray; remainder of the under parts white, with the breast down to the thighs broadly barred with dusky brown, and partially washed with rufous; under wing-coverts white, shaded with rufous; quills dusky brown with numerous white or buff partial bars on their inner webs. 'Bill black, with the base of the lower mandible pale green; iris, eyelids, legs, and claws bright gamboge-yellow.' (*Davison.*) Length, 394; culmen, 28; wing, 206; tail, 190; tarsus, 25.

"*Immature.*—Differs from the adult in the gray of the upper parts being confined to the crown, the back of the neck being mottled with rufous, the feathers of the back and wings more or less edged or barred with rufous. Under surface white washed with buff; chin generally darker, often black; throat and front of the chest broadly striped, the breast with broad short bars to the feathers." (*Shelley.*)

"One adult female was obtained in the Island of Busuanga. Upper mandible black, lower greenish; eyelids yellow; eyes orange; legs, feet, and nails bright lemon-yellow. Length, 400; culmen, 32; wing, 223; tail, 211; tarsus, 33; middle toe with claw, 37." (*Bourns and Worcester MS.*)

332. **HIEROCOCCYX FUGAX** (Horsfield).

HORSFIELD'S HAWK CUCKOO.

Cuculus fugax Horsfield, Trans. Linn. Soc. (1821), **13**, pt. 1, 178.

Hierococcyx fugax Shelley, Cat. Birds Brit. Mus. (1891), **19**, 236; Sharpe, Hand-List (1900), **2**, 157; Oates and Reid, Cat. Birds' Eggs (1903), **3**, 104; McGregor and Worcester, Hand-List (1906), 61.

Banton (*Celestino*); Basilan (*Bourns & Worcester*); Bohol (*McGregor*); Cagayancillo (*McGregor*); Cebu (*Bourns & Worcester*); Luzon (*Heriot*); Mindanao (*Everett, Steere Exp.*); Mindoro (*McGregor, Porter*); Sulu (*Bourns & Worcester*). Sumatra, Java, Borneo.

Adult.—Above uniform slate-gray; end of tail bright rufous otherwise very similar to that of *H. sparverioides;* below white, with a variable amount of rufous on the breast; in some specimens the whole chest rufous, in others only the edges of the feathers rufous; chin gray; throat white slightly tinged with gray, and occasionally streaked with brown or rufous; no bars on breast thus distinguishing it from *H. sparverioides.* Length of male from Cagayancillo, 280; wing, 170; tail, 151; exposed culmen, 20; tarsus, 18. Length of female from Mindoro, 285; wing, 170; tail, 157; exposed culmen, 20; tarsus, 19.

"*Immature.*—Top of head gray; upper parts including wings, dark gray barred with rufous, tail barred as in the adult with light brown, blackish brown, and rufous, the rufous bars narrowest; under parts white with broad, pointed, mesial stripes of blackish; edges of feathers washed with rusty-brown; under tail-coverts white.

"*Nestling.*—Similar in plumage to the immature bird, with the back brown and the markings on the breast rather larger. Length, 208 mm." (*Shelley.*)

"Rare and shy. Found skulking in thick bushes or under-brush, often near water. A male measures, 286 in length; wing, 167; tail, 153; culmen, 25; tarsus, 20; middle toe with claw, 27. A female, length, 305; wing, 173; tail, 139; culmen, 25; tarsus, 22; middle toe with claw, 28. Iris brown; legs, feet, and nails bright yellow. Bill with upper mandible olive-green at base, black at tip; lower mandible olive-green. Food beetles and other insects." (*Bourns and Worcester MS.*)

Genus CUCULUS Linnæus, 1758.

Secondaries about half the length of primaries; wing long and flat; tail shorter than wing; in adults the upper parts are nearly uniform brown or gray, chin and throat gray; abdomen white barred with black.

Species.

a^1. Tail with a subterminal black band; crown and throat grayish contrasting with mantle and back........ **micropterus** (p. 370)

a^2. Tail without a subterminal black band; crown and throat gray like the back.

  b^1. Larger; wing, 200 to 230 mm.; bars on breast more dusky; edge of wing white and brown .... **canorus** (p. 371)

  b^2. Smaller; wing, less than 200 mm.; bars on breast jet-black, broader and more complete; edge of wing white........ **saturatus** (p. 372)

333. CUCULUS MICROPTERUS Gould.

SHORT-WINGED CUCKOO.

Cuculus micropterus GOULD, Proc. Zool. Soc. (1837), 137; SHELLEY, Cat. Birds Brit. Mus. (1891), **19**, 241; GRANT, Ibis (1896), 560; SHARPE, Hand-List (1900), **2**, 158; MCGREGOR and WORCESTER, Hand-List (1906), 61.

Negros (*Whitehead*). Malay and Indian Peninsulas, Andaman Islands, Burmese Provinces, Sumatra, Java, Borneo, Ternate, Ceylon, China, Japan.

"*Adult.*—Above dark brown, shading into slaty gray on the back of the neck and head; tail rather paler brown, with a broad subterminal black bar and a white tip, all the feathers having about five or six white spots on their quills, increasing in size toward the outer feathers, and most of them having white notches on their inner webs; throat gray, sometimes shaded with dusky on the sides of the crop; sides of the head and neck rather darker gray, more like the crown; remainder of the under parts buff or white, rather broadly barred with black, the under tail-coverts being less regularly marked and with fewer bars; under surface of the wings as in *C. cānorus.* 'Iris brown; bill horny, below lighter and tinted with yellow toward the base; gape and eyelids bright yellow; feet and legs duller yellow; two front claws horny, two hind ones yellow.' (*Bingham.*) Length, 305; culmen, 25; wing, 20; tail, 160; tarsus, 20.

"*Immature.*—Above brown, darker on the head; the crown and neck thickly mottled with broad fulvous ends to the feathers; feathers on the back and wings broadly tipped with rufous or buff; tail very similar to that of the adult, but with the pale portion more rufous; beneath buff, barred with black, and mottled with gray on the throat in older specimens." (*Shelley.*)

334. **CUCULUS CANORUS** Linnæus.

EUROPEAN CUCKOO.

Cuculus canorus LINNÆUS, Syst. Nat. ed. 10 (1758), **1**, 110; SHELLEY, Cat. Birds Brit. Mus. (1891), **19**, 245; BLANFORD, Fauna Brit. Ind. Bds. (1895), **3**, 205, fig. 60 (head); SHARPE, Hand-List (1900), **2**, 158; OATES and REID, Cat. Birds Eggs (1903), **3**, 105; MCGREGOR and WORCESTER, Hand-List (1906), 61.

Basilan (*McGregor*); Batan (*McGregor*); Calayan (*McGregor*); Palawan (*Platen*); Siquijor (*Bourns & Worcester*). Europe and northern Asia; in winter to Africa, Indian Peninsula, Malayan subregion to Australia.

"*Adult male.*—General color above leaden gray, slightly shaded with olive on the mantle and wings; quills dark brown, more or less notched with white on the inner webs; lateral upper tail-coverts narrowly edged and partially barred with white; tail slaty black, with white ends to all the feathers and with about seven double white spots along their shafts and white notches on their inner webs never forming bars across the feathers; sides of the head and neck, chin, and throat gray, slightly paler than the crown; remainder of the under parts white, shaded with buff on the abdomen and under tail-coverts, and very regularly barred with dusky black; axillars and under wing-coverts barred like the breast, with a portion near the bend of the wing and most of the greater series leaden gray; quills beneath dusky brown, with white bars on their inner webs, broadest and most strongly marked toward the base of the feathers. Bill black, yellowish at the base and edges; iris and legs yellow. Length, 356; culmen, 229; wing, 226; tail, 178; tarsus, 20.

"*Adult female.*—Differs only in plumage from the male in having the base of the throat shaded with rufous. Length, 320; culmen, 22; wing, 211; tail, 173; tarsus, 19.

"*Nestling.*—General plumage above dark brown, partially barred with rufous, with a narrow white terminal margin to each of the feathers, broadest on the wings and tail; crown and nape much mottled with white; sides of the head, chin, and throat blackish brown and white in broad bars of nearly even breadth; remainder of the under surface of the body white, with blackish brown bars not half the width of the intervening white spaces. Length, 170; wing, 127.

"*Young nearly full-grown.*—Above gray, passing into brownish black on the head, wings, and tail; crown and nape mottled with white feathers; feathers of the head, neck, wings, and tail strongly barred with rufous; remainder of the back much less distinctly barred, each feather being tipped with white next to a subterminal dark bar; tail with waved rufous bars passing into white near the shafts of the feathers and with white ends; general color of the under parts buffish white, with blackish brown bars, slightly broader on the chin and throat than on the breast. Length, 297; wing, 184.

"*Hepatic phase.*—General color of the upper parts cinnamon, barred on the head, mantle, and wings with dusky black; lower back and upper tail-coverts with a few black spots next to their shafts; outer tail-coverts with partial traces of dark bars; tail partially barred with black and marked with white near the shafts, the tips, and some of the edges of the feathers, and with a broad subterminal black band; under parts buffish white, rather darker on the throat, and all the feathers barred with dusky black. Length, 297; culmen, 22; wing, 216; tail, 170; tarsus, 19." (*Shelley.*)

"We secured a single specimen in Siquijor in February, 1891; a second specimen was seen but not secured. The specimen in question, a male, measures, 311 in length; wing, 201; tail, 161; culmen, 27; tarsus, 22; middle toe with claw, 26. Iris brownish yellow, with inner ring of dull brown; feet bright yellow; nails yellowish, except that of middle toe, which is black; upper mandible black, lower light yellowish." (*Bourns and Worcester MS.*)

335. **CUCULUS SATURATUS** Hodgson.

HIMALAYAN CUCKOO.

Cuculus saturatus HODGSON, Jour. As. Soc. Bengal (1843), **12**, 942; SHARPE, Hand-List (1900), **2**, 158; OATES and REID, Cat. Birds' Eggs (1903), **3**, 114; MCGREGOR and WORCESTER, Hand-List (1906), 61.
Cuculus intermedius SHELLEY, Cat. Birds Brit. Mus. (1891), **19**, 252.
Cuculus canoroides BLASIUS, Ornis (1888), 6 (of reprint); Jour. für Ornith. (1890), 145.

Mindanao (*Platen*); Palawan (*Platen*). Eastern Siberia, Indian Peninsula, Andaman Islands, Malay Archipelago, Burmese provinces, northeastern Australia, Japan, China, New Guinea, New Britain.

"*Adult male.*—Very similar to *C. canorus,* but smaller, with the bill shorter and stouter. The plumage differs in the upper parts being of a deeper and more blue-gray, the breast and under tail-coverts more washed with buff, and the bars on the body black, broader and more sharply defined than in *C. canorus.* 'Bill above blackish, below greenish; gape and mouth inside deep orange; eyelids bright yellow; iris stone-color; legs dull yellow; claws pale.' (*Cripps.*) Length, 325; culmen, 23; wing, 188; tail, 160; tarsus, 18.

"*Adult female.*—Differs only in plumage from the male in having the base of the throat shaded with buffish rufous, as is the case in *C. canorus.* Length, 292; culmen, 18; wing, 188; tail, 152; tarsus, 18.

"*Nestling.*—General plumage above blackish brown, with narrow terminal white margins to the feathers, which margins are broadest on the wings and tail; the white nuchal patch so characteristic of *C. canorus* is indicated by three white feathers; a few rufous partial bars on the wings and tail; chin and throat blackish brown, the feathers of the latter with very narrow whitish terminal edges; remainder of the under surface of the body blackish brown and white in broad bars of even width. Length, 127; wing, 94.

"*Young nearly full-grown.*—Differs from *C. canorus* at this stage in being much blacker, in generally having no white feathers on the nape, and in the greater breadth of the black bars on the throat and breast, which are seldom narrower than the white space between them.

"*Rufous phase.*—Compared with the rufous phase of *C. canorus*, it is darker, the dark bars being broader and blacker; lower back and upper tail-coverts barred with black like the crown; tail with very distinct black bars forming angles at the shafts of the feathers; under surface of the body similarly colored, but much more broadly barred with black than in *C. canorus*. Length, 282; culmen, 22; wing, 178; tail, 155; tarsus, 18." (*Shelley.*)

Genus PENTHOCERYX Cabanis, 1862.

"This genus resembles *Cacomantis* in structure and size, the only structural distinctions being that the bill is much stouter and broader up to the tip, which is blunt when seen from above, and that the tail-feathers become narrower behind instead of remaining of the same breadth. The wing is shaped as in *Cacomantis*, the primaries only exceeding the secondaries by one-third the length." (*Blanford.*)

336. **PENTHOCERYX SONNERATI** (Latham).

BANDED BAY CUCKOO.

Cuculus sonnerati LATHAM, Ind. Orn. (1790), **1**, 215; SHELLEY, Cat. Birds Brit. Mus. (1891), **19**, 262.

Penthoceryx sonnerati BLANFORD, Fauna Brit. Ind. Bds. (1895), **3**, 219, fig. 63 (head); SHARPE, Hand-List (1900), **2**, 159; OATES and REID, Cat. Birds' Eggs (1903), **3**, 115, pl. 2, fig. 2; MCGREGOR and WORCESTER, Hand-List (1906), 61.

Calamianes (*Bourns & Worcester*); Palawan (*Whitehead, Bourns & Worcester*); Tablas (*Bourns & Worcester*). Malay and Indian Peninsulas, Burmese provinces, Ceylon, Java, Sumatra, Borneo, Timor.

"*Adult.*—Above alternately barred with rufous and dusky bronze, with a slight olive gloss; forehead more or less spotted with white; a white patch on the carpal joint faintly barred with dusky; tail with rufous-shaded white ends; center feathers blackish, with a number of rufous notches on both webs; remaining feathers bright rufous, with a broad subterminal dark bar and a variable number of other bands; sides of the head and under parts white, evenly marked with narrow wavy bars of blackish brown, the lower breast and under tail-coverts slightly tinted with rufous; under wing-coverts pale rufous-buff, barred like the breast; under surface of the quills dark brown, with a large basal portion of their inner webs rufous-buff, more or less barred with dark brown. Bill black, with base of lower mandible gray; legs greenish gray. Length, 234; culmen, 19; wing, 122; tail, 122; tarsus, 18.

"*Immature.*—Above rufous; the upper back, scapulars, and wing-coverts barred with olive-shaded black; a band of this color runs down the centers of some of the tail-feathers, and most of these feathers have bold black spots near their ends and occasionally white tips; sides of the head and sides of the neck rufous like the crown; remainder of the under parts white, with the blackish bars on the throat and chest broader than in the adult." (*Shelley.*)

"An adult male from the Calamianes Islands measures, 216 in length; wing, 104; tail, 98; culmen, 24; tarsus, 15; middle toe with claw, 21. Iris dark brown; legs and feet drab; upper mandible black, lower dark gray. Our Tablas specimens are immature, but there seems little room for doubt as to their identity." (*Bourns and Worcester MS.*)

Genus CACOMANTIS S. Müller, 1843.

Size small; wing short and pointed; third primary longest; primaries exceeding secondaries by one-third of length of wing; tail strongly graduated, longer than wing. In this genus the young have a barred plumage which disappears in the adult; *Penthoceryx* has no change of pattern but retains the barred livery in the adult state.

337. **CACOMANTIS MERULINUS** (Scopoli).

RUFOUS-BELLIED CUCKOO.

Cuculus merulinus SCOPOLI, Del. Flor. et Faun. Insubr. (1786), **2**, 89.

Cacomantis merulinus SHELLEY, Cat. Birds Brit. Mus. (1891), **19**, 268; SHARPE, Hand-List (1900), **2**, 159; MCGREGOR and WORCESTER, Hand-List (1906), 62.

Ma-sa-kit', Manila.

Balabac (*Everett*); Bantayan (*McGregor*); Basilan (*Steere, Everett, Steere Exp., Bourns & Worcester, McGregor*); Bohol (*Everett, McGregor*); Bongao (*Everett*); Cagayancillo (*McGregor*); Calamianes (*Bourns & Worcester*); Caluya (*Porter*); Catanduanes (*Whitehead*); Cebu (*Steere Exp., Bourns & Worcester, McGregor*); Leyte (*Steere Exp.*); Lubang (*McGregor*); Luzon (*Cuming, Gevers, Everett, Heriot, Steere Exp., Whitehead, Bourns & Worcester, McGregor*); Masbate (*Steere Exp., Bourns & Worcester*); Mindanao (*Everett, Steere Exp., Bourns & Worcester, Goodfellow*); Mindoro (*McGregor, Porter*); Negros (*Steere Exp., Whitehead, Bourns & Worcester, Keay*); Palawan (*Everett, Whitehead, Platen, Steere Exp., Bourns & Worcester, White*); Panay (*Sonnerat, Steere, Steere Exp.*); Samar (*Steere Exp.*); Semirara (*Porter*); Sibay (*Porter*); Siquijor (*Celestino*); Sulu (*Platen, Bourns & Worcester*); Tablas (*Bourns & Worcester*); Tawi Tawi

(*Bourns & Worcester, Everett*); Ticao (*McGregor*). Malay Peninsula, Burmese Provinces, eastern Himalayas, northeastern Bengal, central India, Sumatra, Java, Borneo, Celebes, Ternate.

"*Adult male.*—Upper half of the head and back of the neck leaden gray, passing gradually into brown, with an olive gloss on the back and wings; feathers of the pinion-joint white, forming a patch; upper tail-coverts gray like the crown; tail slaty black with white ends, the outer webs of the feathers notched with white, the inner webs regularly barred with white, most strongly so on the outer feathers; sides of the head, chin, throat, and front of chest uniform gray, slightly paler than the crown; remainder of the body and under tail-coverts and the under wing-coverts uniform rufous-buff; under surface of the quills dusky brown, with a diagonal bar of white formed by the white on the inner webs near the base of the quills. 'Bill black, base of lower mandible reddish. Iris light red; feet and legs waxy naples-yellow, nails black.' (*Everett.*) Length, 208; culmen, 16; wing, 109; tail, 109; tarsus, 16.

"*Immature.*—Above rufous, nearly equally barred throughout with olive, shaded black; primaries alone more uniform brown; under parts buff, narrowly barred throughout with dusky black; under wing-coverts like the chest; pale portion of the quills more rufous than in the adult and indicating partial bars. 'Bill dusky black, yellowish at the gape and base of lower mandible; iris yellowish white, legs and feet dingy grayish yellow.' (*Hume.*) Length, 231; culmen, 18; wing, 109; tail, 127; tarsus, 18." (*Shelley.*)

Nestling.—Upper parts including wings and tail dark brown, the feathers barred and edged with cinnamon-rufous; tip of tail and edge of wing white; below white, barred, more regularly than above, with blackish brown.

"Very common. It is quite a sweet singer. Legs and feet dirty yellow; nails black; upper mandible black, lower light brown. Four males measure, 241 in length; wing, 118; tail, 132; culmen, 21; tarsus, 16; middle toe with claw, 21." (*Bourns and Worcester MS.*)

Genus CHALCOCOCCYX Cabanis, 1862.

Length, about 165 mm.; tail short and rounded; wings long and pointed, when folded reaching nearly to tip of tail; plumage metallic bronze or violet; breast, abdomen, and sides barred with white.

Species.

*a*¹. Bill bright yellow; upper parts deep metallic violet.... **xanthorhynchus** (p. 376)
*a*². Bill not yellow; upper parts metallic bronze, green, and purple. **malayanus** (p. 377)

338. CHALCOCOCCYX XANTHORHYNCHUS (Horsfield).

VIOLET CUCKOO.

Cuculus xanthorhynchus HORSFIELD, Trans. Linn. Soc. (1821), **13**, pt. 1, 179.
Chalcococcyx xanthorhynchus SHELLEY, Cat. Birds Brit. Mus. (1891), **19**, 289; SHARPE, Hand-List (1900), **2**, 161; MCGREGOR, Phil. Jour. Sci. (1906), **1**, 905; MCGREGOR and WORCESTER, Hand-List (1906), 62.
Lampromorpha amethystina VIGORS, Proc. Zool. Soc. (1831), 98.

Basilan (*McGregor*); Cebu (*Bourns & Worcester*); Luzon (*Lindsay*); Mindoro (*Steere Exp., McGregor, Porter*); Palawan (*Whitehead, Platen, Bourns & Worcester*); Samar (*Whitehead*). Nicobars, Andamans, Malay Peninsula, Indo-Chinese Provinces, Assam, Java, Sumatra, Borneo.

Male.—Entire head, neck, wings, tail, chin, throat, and fore breast beautiful metallic violet; three outer pairs of rectrices tipped with white; outermost pair with three white spots on outer webs; under parts, wing-lining, and axillars white, barred with metallic green. A male from Mindoro had inner ring of iris dark red, outer ring yellow; eyelids scarlet; bill bright yellow, its basal third orange-red; legs and nails black. Length, 165; wing, 103; tail, 68; culmen from base, 19; A male from Palawan measures: Wing, 91; tail, 65; culmen from base, 17.

"*Adult female.*—Above coppery bronze shaded with green, and with somewhat obscure rufous edges to most of the feathers of the wing; sides of the head and eyebrows white, barred with black; forehead partially mottled with these colors; remainder of the crown and back of the neck nearly uniform dark brown; center pair of tail-feathers nearly uniform fiery bronze, passing into green toward their ends; remainder of the feathers rufous, barred with black, and the outer web and tip of the exterior pair blotched with white; under parts, including the under wing-coverts, white, regularly barred with bronzy brown, passing into black on the under tail-coverts; under surface of the quills brown, with broad inner margins of buff, passing into white near the base of the feathers. Length, 168; culmen, 16; wing, 99; tail, 71; tarsus, 14.

"*Young.*—Above rufous; back of the neck, back, and wing-coverts barred with metallic green; quills greenish brown, edged with rufous; two center tail-feathers metallic green, tipped with rufous, remainder rufous, barred with black and tipped with white and with some white bars on the outer feathers; beneath white, barred with bronze. Bill yellowish brown. Length, 142. Males on first assuming the metallic plumage are irregularly blotched with both metallic green and violet." (*Shelley.*)

"A very rare bird. Iris red; legs and feet dark olive; nails black; bill orange-yellow, red at base; eye-wattles red. Food, in one case, caterpillars. A male measures, 203 in length; wing, 96; tail, 66; culmen, 18; tarsus, 13; middle toe with claw, 19. (*Bourns and Worcester MS.*)

It is not improbable that Vigors's name will have to be used for the violet cuckoo inhabiting the Philippine Islands, outside the Palawan group; at the present time, however, sufficient material to warrant the separation is not available.

339. CHALCOCOCCYX MALAYANUS (Raffles).

EMERALD CUCKOO.

Cuculus malayanus RAFFLES, Trans. Linn. Soc. (1822), **13**, pt. 2. 286.
Chalcococcyx malayanus SHELLEY, Cat. Birds Brit. Mus. (1891), **19**, 298; SHARPE, Hand-List (1900), **2**, 162; MCGREGOR and WORCESTER, Hand-List (1906), 62.

Basilan (*McGregor*); Bongao (*Everett*); Mindanao (*Everett, Celestino*); Negros (*Steere*); Tawi Tawi (*Everett*). Malay Peninsula, Sumatra, Java, Borneo, Timor, Flores, Celebes, New Guinea, Solomon Islands, northern Australia.

Adult female.—Above including wing and tail dark metallic bronze-green, mixed with dark purple, the latter color more pronounced on head and neck; some small white spots on lores and above and below eyes; below white, barred with coppery bronze; throat, fore breast, and sides of neck heavily washed with rich rusty brown which nearly obliterates the white and bronze bars; under wing-coverts and axillars barred with white and bronze; under surface of wing ashy brown; on inner web near the base of each quill a white patch, followed by a larger rufous patch forming a diagonal double band; rectrices rufous, outermost pair barred with black and white and with white tips; next two pairs barred with black and with white tips; fourth pair ashy brown, barred with rufous on outer webs and with tips subterminally blackish; middle pair ashy brown with obsolete subterminal bars. Iris red; bill black, dark red at base; feet dark green. Length, 160; wing, 99; tail, 66; culmen from base, 16; bill from nostril, 12. The specimen described above was taken in Basilan. Male similar?

"Bill blackish; iris burnt sienna color; orbital ring fine vermilion; feet very dark lead-gray." (*Everett.*)

Genus EUDYNAMYS Vigors and Horsfield, 1826.

Adult male entirely black; adult female conspicuously barred and spotted; feet stout; tail long, its feathers broad and rounded at their tips.

Species.

*a*¹. Plumage black (males).	
*b*¹. Smaller; wing, 200 mm. or less	**honorata** (p. 378) **mindanensis** (p. 379)
*b*². Larger; wing, 225 mm. or more	**frater** (p. 379)
*a*². Plumage barred (females).	
*b*¹. Smaller; wing, 200 mm. or less.	
*c*¹. Bars on abdomen broader	**honorata** (p. 378)
*c*². Bars on abdomen narrower	**mindanensis** (p. 379)
*b*². Larger; wing, 225 mm. or more	**frater** (p. 379)

340. **EUDYNAMYS HONORATA** (Linnæus).

INDIAN KOEL.

Cuculus honoratus Linnæus, Syst. Nat. ed. 12, (1766), **1**, 169.
Eudynamis honorata Shelley, Cat. Birds Brit. Mus. (1891), **19**, 316; Blanford, Fauna Brit. Ind. Bds. (1895), **3**, 228, fig. 65 (head); Sharpe, Hand-List, (1900), **2**, 164; Oates and Reid, Cat. Birds' Eggs (1903), **3**, 121; McGregor and Worcester, Hand-List (1906), 62.

Palawan (*Platen, Steere Exp.*). Malay and Indian Peninsulas, Burmese Provinces, Andaman Islands, Ceylon, China, Sumatra, Java, Borneo, Flores.

"*Adult male.*—Entire plumage black, very strongly glossed with bluish green. 'Iris crimson; bill pale bluish green, dusky round the nostrils; legs and feet leaden blue.' (*Legge.*) Length, 386; culmen, 30; wing, 193; tail, 20; tarsus, 30.

"*Adult female.*—Above blackish brown, with an olive gloss; crown, sides of the head, and back of the neck very strongly mottled with broad white shaft-stripes, which are generally shaded toward the forehead with rufous; back and wing-coverts spotted with white; quills, upper tail-coverts, and tail barred with white; beneath white, feathers of the throat with broad black sides, remainder of the under surface of the body and the under wing-coverts with rather broad black angular bars; under surface of the quills brown, partially barred with white. 'Iris crimson; legs and feet plumbeous; bill greenish gray, gape pinkish flesh-color.' (*Butler.*) Length, 406; culmen, 30; wing, 190; tail, 198; tarsus, 33.

"*Nestling.*—Entirely greenish black like the adult male.

"The scarcely full-grown birds have more or less marking on the tail-feathers and the under surface of the quills, and have numerous fulvous spots on the body-feathers. In more than one specimen the breast and abdomen are thickly mottled with buff markings.

"There seems to me to be no absolute uniformity in the color of the young birds, and some are much more spotted than others. If Mr. Whitehead's surmise is correct, that the young female is also black like the male, then it is possible that the less spotted nestlings are males, which remain almost uniform till they take on the adult plumage after their first molt, while the feathers are even more mottled, foreshadowing the spotted dress which they are about to assume. The plumage of the adult female also varies, and very old birds appear to me to grow hoary, while the yellowish or reddish tinge on the head and throat may be considered as sure signs of youth." (*Shelley.*)

"Whitehead insists, Ibis (1890), 46, that the Palawan species is *E. mindanensis,* and not *E. malayana* (*honorata*). Blasius, however, seems to think that he found both species among Dr. Platen's birds. Steere identified the specimens secured by us in 1897 as *E. malayana.* We secured no additional material on our present trip." (*Bourns and Worcester MS.*)

341. EUDYNAMYS MINDANENSIS (Linnæus).

PHILIPPINE KOEL.

Cuculus mindanensis LINNÆUS, Syst. Nat. ed. 12. (1766), **1**, 169.
Eudynamis mindanensis SHELLEY, Cat. Birds Brit. Mus. (1891), **19**, 321; SHARPE, Hand-List (1900), **2**, 165; MCGREGOR and WORCESTER, Hand-List (1906), 63.

Ba-haó, Ticao; *eu-aó*, Masbate; *pa-haó*, Cagayancillo; *bau-baó*, Cuyo; *eu-aoó*, Calayan.

Apo (*Celestino*); Bantayan (*McGregor*); Basilan (*Everett, Steere Exp., Bourns & Worcester, McGregor*); Bohol (*McGregor*); Bongao (*Everett*); Cagayancillo (*McGregor*); Calayan (*McGregor*); Caluya (*Porter*); Camiguin N. (*McGregor*); Cebu (*Bourns & Worcester*); Cuyo (*McGregor*); Fuga (*McGregor*); Guimaras (*Meyer*); Leyte (*Whitehead*); Luzon (*Everett, Whitehead*); Malanipa (*Murray*); Marinduque (*Steere Exp.*); Masbate (*Bourns & Worcester, McGregor*); Mindanao (*Everett, Steere Exp., Bourns & Worcester, Celestino, Goodfellow*); Mindoro (*Steere Exp., Bourns & Worcester, Whitehead, McGregor, Porter*); Negros (*Steere, Bourns & Worcester, Keay*); Palawan (*Platen Whitehead, Steere Exp.*); Panay (*Bourns & Worcester*); Romblon (*Bourns & Worcester, McGregor*); Samar (*Steere Exp.*); Semirara (*McGregor & Worcester*); Sibutu (*Everett*); Sibuyan (*Bourns & Worcester, McGregor*); Siquijor (*Bourns & Worcester, Celestino*); Sulu (*Platen, Bourns & Worcester*); Tablas (*Bourns & Worcester*); Tawi Tawi (*Bourns & Worcester*); Ticao (*McGregor*). Sangi Islands.

"*Adult male.*—Similar in plumage to *E. honorata*. 'Bill grayish green; legs dark lead-gray; claws black; iris crimson.' (*Everett.*) Length, 373; culmen, 30; wing, 188; tail, 193; tarsus, 33.

"*Adult female.*—Similar in plumage to *E. honorata* but with the entire upper half of the head rufous, streaked or mottled with black; bars on the chest, abdomen, and under tail-coverts slightly narrower. 'Bill pale green, deep orange at base; legs yellow, tinged green on the tarsus; nails gray; iris chrome-yellow.' (*Everett.*) Length, 368; culmen, 32; wing, 19; tail, 19; tarsus, 33." (*Shelley.*)

"A very common bird throughout the islands, especially abundant in mangrove swamps and in second growth. Called 'bahów' by the natives from its note. Frequently heard crying at dead of night. Five males average, 386 in length; wing, 189; tail, 185; culmen, 28; tarsus, 32; middle toe with claw, 46. Two females, length, 362; wing, 183; tail, 176; culmen, 28; tarsus, 29; middle toe with claw, 37. Eyes red; legs and feet leaden gray to nearly black; bill pale greenish. Food usually insects, but in one case fruit." (*Bourns and Worcester MS.*)

342. EUDYNAMYS FRATER McGregor.

ALLIED KOEL.

Eudynamis frater MCGREGOR, Bull. Philippine Mus. (1904), **4**, 21; MCGREGOR and WORCESTER, Hand-List (1906), 63.

Calayan (*McGregor*); Fuga (*Whitehead, McGregor*).

Male.—Entire plumage glossy blue-black. Bill dusky greenish; iris crimson; legs and feet dark steel-blue; nails brown. Length, 490; wing, 241; tail, 237; exposed culmen, 31; bill from nostril, 22.

Female.—Above dark brown with a faint purple gloss on wing-coverts and scapulars; feathers of crown, neck, and sides of face with rufous shaft-stripes; back, rump, and wings with small tawny-rufous spots, quills and tail barred with same color; lower parts buff (inclining to white on middle of breast) barred with black; a more or less distinct white band from base of bill to below posterior edge of ear-coverts, wider posteriorly; below this a wide band of dark rufous mixed with black; ear-coverts similar; chin and throat striped with black and tawny-buff. Bill dusky greenish; iris crimson; legs and feet steel-blue; nails brown. Length, 490; wing, 240; tail, 227; exposed culmen, 31; bill from nostril, 22.

Subfamily CENTROPODINÆ.

Genus CENTROPUS Illiger, 1811.

Bill powerful, strongly curved; legs and feet strong, tarsus naked; claw of hind toe very long and slender, nearly straight; wings short, rounded, and curved to the body, primaries but little longer than secondaries; tail very long, its feathers wide and soft; feathers of head, neck, and throat coarse and decomposed, their shafts strong and polished.

Species.

- a^1. Head, chin, and throat black; wings neither chestnut nor fawn.
  - b^1. Entire plumage nearly uniform black, glossed with oil-green.
    - c^1. Slightly smaller; culmen in male, about 29 mm........ **mindorensis** (p. 381)
    - c^2. Slightly larger; culmen in male, about 32 mm................ **carpenteri** (p. 382)
  - b^2. Neck and breast smoky brown in contrast with the black of head and throat. **steeri** (p. 382)
- a^2. Not uniform black; wings chestnut, rufous, or fawn.
  - b^1. Tail black, glossed with blue or green.
    - c^1. Under parts nearly uniform black.
      - d^1. Head, neck, and breast glossed with bluish violet; wing, 220 mm. or more. **sinensis** (p. 383)
      - d^2. Head, neck, and breast glossed with oil-green or dark blue; wing, 190 mm. or less.
        - e^1. Wings bright rufous; shafts of wing-coverts rufous; wing-lining black. **viridis** (p. 383)
        - e^2. Wings dark buff; shafts of wing-coverts pale buff; wing-lining buff. **javanicus** (p. 384)
    - c^2. Chin, throat, and breast light buff; abdomen black, glossed with oil-green. **melanops** (p. 386)
  - b^2. Tail and entire upper parts uniform rufous......................... **unirufus** (p. 386)

343. CENTROPUS MINDORENSIS (Steere).

MINDORO COUCAL.

Centrococcyx mindorensis STEERE, List Birds & Mams. Steere Exped. (1900), 12.

Centropus mindorensis SHELLEY, Cat. Birds Brit. Mus. (1891), **19**, 339; SHARPE, Hand-List (1900), **2**, 166; GRANT, Ibis, (1896), 475; McGREGOR, Bur. Govt. Labs. (1905), **34**, 17; McGREGOR and WORCESTER, Hand-List (1906), 63.

Mindoro (*Steere Exp., Everett, Platen, Schmacker, Bourns & Worcester, Whitehead, McGregor, Porter*); Semirara (*Worcester*).

Adult (*sexes similar*).—Entire plumage black, heavily glossed with oil-green; most of the feathers with glossy black shafts: in some specimens the alula and primary-coverts edged with rufous. Iris dark red; bill, legs, and nails black. Length of a male, 460; wing, 155; tail, 270; culmen from base, 29; depth of bill at front of nostril, 13.

Young.—A young male taken May 11 is blackish brown; head and neck glossed with green; chin, throat, and breast mottled with gray; wings faintly glossed with green; primaries and secondaries slightly tipped with dull rufous; alula and all upper wing-coverts barred with dull rufous; tail black strongly glossed with green. Wing, 160; tail, 180; culmen from base, 29.

Grant gives the following description of an immature male:

"The immature feathers in the upper parts are dull brownish black, devoid of any gloss; the immature tail- and flight-feathers are similarly colored, but slightly glossed, and the latter are indistinctly barred with pale rufous on both webs. The throat, breast, and belly are brownish black, indistinctly marked with buff; the rest of the plumage is similar to that of the adult."

"Frequents bushes in open fields like *C. viridis*. Very common in Mindoro. Four males average, 445 in length; wing, 167; tail, 268; culmen, 37; tarsus, 35; middle toe with claw, 40. A female measures, 476 in length; wing, 176; tail, 279; culmen, 32; tarsus, 42; middle toe with claw, 42. Iris red; bill, legs, and feet black. Food insects." (*Bourns and Worcester MS.*)

The Mindoro coucal builds a bulky globular nest of grass, with an entrance on one side. A nest found in April was situated in a thick bed of giant grass. The two eggs are dull white and covered with a thin layer of a white, chalky substance: their measurements are 27.4 by 21.8 and 24.3 by 21.

344. CENTROPUS CARPENTERI Mearns.

BATAN ISLAND COUCAL.

Centropus carpenteri MEARNS, Phil. Jour. Sci. (1907), **2**, sec. A, 356; McGREGOR, ibid., 340.

Batan (*Mearns, McGregor*).

Adult.—Similar to *Centropus mindorensis* (Steere), but slightly larger. Mearns gives the following measurements:

"*Centropus carpenteri:* Adult male type: Length, 440; wing, 166; tail, 278; chord of culmen, 32; depth of bill, 16; tarsus, 42; middle toe with claw, 44.

"*Centropus mindorensis:* Average of three males: Length, 398; wing, 153; tail, 238; chord of culmen, 29.2; depth of bill, 13.7; tarsus, 40; middle toe with claw, 42."

Young.—A young bird taken June 4 is black; upper parts including wings and tail lightly glossed with green; chin and throat slightly mottled with gray; tips of primaries and secondaries slightly rufous; alula and all upper wing-coverts barred with rufous. Wing, 140; tail, 112; culmen from base, 26.

345. CENTROPUS STEERI Bourns and Worcester.

STEERE'S COUCAL.

Centropus steerii BOURNS and WORCESTER, Minnesota Acad. Nat. Sci. Occ. Papers (1894), **1**, 14; SHARPE, Hand-List (1900), **2**, 166; McGREGOR and WORCESTER, Hand-List (1906), 63.

Mindoro (*Platen, Bourns & Worcester, Whitehead, McGregor*).

"*Sexes alike.*—Forehead, crown and nape, sides of face, chin, throat, and upper breast greenish black; the coarse shafts of the feathers shiny black, the webs with a faint greenish tinge; hind neck and back, sides of neck, wing-coverts, and breast smoky brown with faint greenish tinge; hind back and rump slaty black, tips of feathers with greenish tinge; upper tail-coverts and upper surface of tail uniform dull metallic green; shafts of feathers jet-black from base to tip; upper surface of wings earthy brown with metallic green gloss like the tail, except on the four outer primaries, which have little gloss; abdomen browner than breast and with less metallic wash; flanks, thighs, and under tail-coverts like rump; under surface of tail black with faint metallic blue gloss; under wing-coverts and axillars like breast; under surface of wing uniform blackish brown. Seven males measure as follows: Length, 424; wing, 150; tail, 216; culmen, 40; tarsus, 42. A female measures, 495 in length; wing, 158; tail, 233; culmen, 44; tarsus, 43." (*Bourns and Worcester.*)

Steere's coucal is somewhat like the Mindoro coucal but its breast and neck are smoky brown while the entire plumage of the Mindoro coucal is black glossed with green. The two species are fairly abundant in Mindoro and inhabit thick grass patches and jungle.

346. CENTROPUS SINENSIS (Stephens).

COMMON COUCAL.

Polophilus sinensis STEPHENS, Gen. Zool. (1815), **9**, 51.
Centropus sinensis SHELLEY, Cat. Birds Brit. Mus. (1891), **19**, 343; BLANFORD, Fauna Brit. Ind. Bds. (1895), **3**, 239, fig. 69 (foot); SHARPE, Hand-List (1900), **2**, 167; OATES and REID, Cat. Birds' Eggs (1903), **3**, 124; MCGREGOR and WORCESTER, Hand-List (1906), 63.

Balabac (*Everett*); Cagayan Sulu (*McGregor*); Luzon (*Cuming*); Palawan (*Everett, Lempriere, Whitehead, Platen, Bourns & Worcester, White*); Sulu (*Platen, Bourns & Worcester*); Tawi Tawi (*Everett*). Malay Peninsula, Burmese countries, Ceylon, China, India, Java, Sumatra, Borneo.

"*Adult male.*—General plumage black, with the wings and upper back chestnut; head, neck, and chest glossed with purplish blue; remainder of the body, lower back, upper tail-coverts, and tail glossed with purplish green; primaries with brown ends; inner secondaries slightly tinted with brown; under wing-coverts glossy black. 'Bill and legs black; iris crimson.' (*Davison.*) Length, 559; culmen, 42; wing, 223; tail, 312; tarsus, 58.

"*Adult female.*—Similar in plumage to the male. Length, 521; culmen, 46; wing, 211; tail, 284; tarsus, 56.

"*Immature.*—Plumage duller than in the adult and generally of a greener shade; sides of head and front of neck with buffy white spots, increasing into bars on the body; mantle, some of the wing-coverts, and the innermost secondaries barred with black; upper tail-coverts narrowly barred with buff; tail glossy greenish black, with no blue shade." (*Shelley.*)

"Rare in Palawan; common in Sulu. Iris red; legs, feet, and nails black; bill black; food insects. Two males measure, 555 in length; wing, 198; tail, 312; culmen, 41; tarsus, 53; middle toe with claw, 50. Two females, length, 475; wing, 178; tail, 245; culmen, 37; tarsus, 44; middle toe with claw, 45." (*Bourns and Worcester MS.*)

347. CENTROPUS VIRIDIS (Scopoli).

RED-WINGED COUCAL.

Cuculus viridis SCOPOLI, Del. Flor. et Faun. Insubr. (1786), **2**, 89.
Centropus viridis SHELLEY, Cat. Birds Brit. Mus. (1891), **19**, 349; SHARPE, Hand-List (1900), **2**, 167; MCGREGOR and WORCESTER, Hand-List (1906), 63.

Suc-suc, Lubang; *sa-guc'-soc*, Ticao; *si-ga-cok'*, Calayan; *sa-ba-cot'*, Manila.

Bantayan (*McGregor*); Banton (*Celestino*); Basilan (*Steere Exp., Bourns & Worcester, McGregor*); Bohol (*Everett, McGregor*); Cagayancillo (*McGregor*); Calayan (*McGregor*); Camiguin N. (*McGregor*); Catanduanes (*Whitehead*); Cebu (*Meyer, Everett, Steere Exp., Bourns & Worcester, McGregor*); Dinagat (*Mearns*); Fuga (*McGregor*); Guimaras (*Meyer, Steere Exp.*); Leyte (*Everett, Steere Exp.*); Lubang (*McGregor*); Luzon (*Meyer, Everett, Steere Exp., Bourns & Worcester, Whitehead, McGregor*); Marinduque (*Steere Exp.*); Masbate (*Steere

Exp., Bourns & Worcester, McGregor); Mindanao (*Steere, Everett, Steere Exp., Bourns & Worcester, Goodfellow*); Mindoro (*Schmacker*); Negros (*Meyer, Everett, Steere Exp., Bourns & Worcester, Whitehead, Keay*); Panay (*Sonnerat, Murray, Steere Exp., Bourns & Worcester*); Romblon (*Bourns & Worcester, McGregor*); Samar (*Steere Exp., Bourns & Worcester, Whitehead*); Siasi (*Guillemard*); Sibuyan (*Bourns & Worcester, McGregor*); Siquijor (*Bourns & Worcester, Celestino*); Sulu (*Guillemard, Bourns & Worcester*); Tablas (*Bourns & Worcester*); Ticao (*McGregor*).

Adult.—Sexes similar; wings bright chestnut, tips of primaries and secondaries blackish brown; wing-lining glossed with green; remainder of plumage black, glossed with dark green and traces of blue. Iris red; bill and nails black; legs dark steel-blue. Length of a male from Manila, 380; wing, 155; tail, 250; culmen from base, 26; tarsus, 42. Length of a female from Cagayancillo, 480; wing, 190; tail, 290; culmen from base, 33; tarsus, 40.

Immature birds differ from the adult in having the head and body brown, more or less mixed with light buff; wings chestnut, barred with blackish brown; feathers of head, neck, throat, and breast with pale buff shafts; the tail, even in very small young birds, is glossy green like that of the adult.

"Commonest of Philippine cuckoos. Found in the brush and high grass in open country; breeds in February and March. Eyes dark cherry-red; legs and feet slaty black; nails black; bill black.

"Five males from Cebu measure, 395 in length; wing, 152; tail, 239; culmen, 30; tarsus, 40; middle toe with claw, 38. A male from Masbate measures, 419 in length; wing, 17; tail, 202; culmen, 27; tarsus, 37; middle toe with claw, 41. Two females from Masbate measure, 457 in length; wing, 171; tail, 247; culmen, 31; tarsus, 41; middle toe with claw, 43. It will be noted that the variations in size are very considerable." (*Bourns and Worcester MS.*)

348. **CENTROPUS JAVANICUS** (Dumont).

JAVAN COUCAL.

Cuculus javanicus Dumont, Dic. Sc. Nat. (1818), **11**, 144.

Centropus javanicus Shelley, Cat. Birds Brit. Mus. (1891), **19**, 354; Sharpe, Hand-List (1900), **2**, 167; Oates and Reid, Cat. Birds' Eggs (1903), **3**, 124; McGregor and Worcester, Hand-List (1906), 63.

Tu-la-cuc', Batan.

Bantayan (*McGregor*); Batan (*McGregor*); Bohol (*Everett, McGregor*); Bongao (*Everett*); Calamianes (*Bourns & Worcester, McGregor*); Cebu (*Bourns & Worcester*); Leyte (*Everett*); Luzon (*Whitehead*); Mindanao (*Bourns & Worcester*); Mindoro (*Steere Exp., Bourns & Worcester, Whitehead, McGregor, Porter*); Negros (*Steere Exp., Keay*); Palawan (*Whitehead, Platen, Steere Exp., Bourns & Worcester, White*); Panay (*Steere Exp.*); Semirara (*Worcester*);

Siquijor (*Bourns & Worcester*); Sulu (*Platen, Bourns & Worcester*); Tawi Tawi (*Bourns & Worcester*). China, Assam, Burma, Malay Peninsula, Moluccas, Sumatra, Java, Borneo, Celebes.

Adult.—General color including tail black, glossed with dark oil-green; shafts of the feathers strong and glossy black; wings light chestnut or reddish buff; coverts and inner secondaries more or less mottled or streaked with blackish brown, the coverts with pale shaft-stripes; tail tipped with pale buff. Iris brown; bill blackish; legs and feet lead-blue; nails blackish. Length, 375 to 400; a male from Mindoro measures, wing, 162; tail, 225; culmen from base, 29; bill from nostril, 18; tarsus, 45; middle toe with claw, 44. A female from Bohol: Wing, 160; tail, 210; culmen from base, 26; bill from nostril, 14; tarsus, 34; middle toe with claw, 39.

Young.—Upper parts seal-brown, somewhat mixed with rusty buff; shafts of feathers on sides of head, neck, and mantle pale buff; back blackish brown, mottled with rusty buff; upper tail-coverts greatly lengthened, two of the feathers being fully two-thirds the length of the rectrices, in color black glossed with green and crossed by numerous bars of rusty buff.

The young plumage here described is usually considered to be put on each winter even by birds that have attained the black adult plumage. It is usually referred to as the "seasonal" or "non-breeding plumage." Blanford, however, under the closely related *Centropus bengalensis* says: "The second garb is called the winter or seasonal plumage by most authors, but I can find no evidence that it is ever assumed by birds that have once attained adult coloration, and there are several winter birds in the British Museum collection with the adult dress. The long upper tail-coverts appear peculiar to the immature plumage." Fauna British India, Birds (1895), **3**, 243.

"We record this species from Leyte and Bohol on the strength of British Museum specimens stated in the Catalogue of Birds to have been collected in these islands, though no mention seems to have been made of them in the Marquis of Tweeddale's report on Mr. Everett's collections.

"Quite common in Sulu and Tawi Tawi; not rare in the other islands indicated. Lives in the grass in open fields. Iris very dark brown; legs and feet blue-black; bill black. Food insects. Three males average, 345 in length; wing, 139; tail, 180; culmen, 24; tarsus, 36; middle toe with claw, 37. Five females, length, 368; wing, 159; tail, 199; culmen, 31; tarsus, 39; middle toe with claw, 39." (*Bourns and Worcester MS.*)

349. **CENTROPUS MELANOPS** Lesson.

BLACK-EYED COUCAL.

Centropus melanops Lesson, Traité (1831), 137; Cassin, Ornith. Wilkes Exped. (1858), 249, atlas pl. 22, fig. 1; Shelley, Cat. Birds Brit. Mus. (1891), **19**, 365; Sharpe, Hand-List (1900), **2**, 168; McGregor and Worcester, Hand-List (1906), 64.

Basilan (*Steere, Everett, Steere Exp., Bourns & Worcester, McGregor*); Bohol (*McGregor*); Leyte (*Whitehead*); Mindanao (*Peale, Everett, Koch & Schadenberg, Steere Exp., Bourns & Worcester, Celestino, Goodfellow*); Nipa (*Everett*); Samar (*Steere Exp., Whitehead*).

Adult (*sexes similar*).—Head, neck, mantle, and lower parts to middle of breast buff, lighter on crown and chin; forehead, lores, cheeks, and eyebrow black forming a mask; wings and scapulars bright chestnut; tips of primaries dark brown; remainder of back, tail, and under parts black, glossed with bluish green; under wing-coverts blackish. Iris red; bill, legs, and claws black. Length of a male from Basilan, 406; wing, 165; tail, 230; culmen from base, 38; tarsus, 40. A male from Bohol measures: Wing, 170; tail, 235; culmen from base, 40; tarsus, 43.

"Frequents thick tangles of vines in deep woods. Very common in Mindanao. Much rarer in Samar.

"Four males measure, 412 in length; wing, 149; tail, 209; culmen, 35; tarsus, 38; middle toe with claw, 41. Four females, length, 441; wing, 155; tail, 236; culmen, 36; tarsus, 41; middle toe with claw, 42.

"The above specimens are from Mindanao. Birds from Samar average slightly larger. Eyes dull red; legs and feet blue-black to black; bill and nails black." (*Bourns and Worcester MS.*)

350. **CENTROPUS UNIRUFUS** (Cabanis and Heine).

RUFOUS COUCAL.

Pyrrhocentor unirufus Cabanis and Heine, Mus. Hein. (1862), **4**, 118 (note).

Centropus unirufus Shelley, Cat. Birds Brit. Mus. (1891), **19**, 367; Sharpe, Hand-List (1900), **2**, 168; McGregor and Worcester, Hand-List (1906), 64.

Luzon (*Heriot, Whitehead, Celestino*).

"*Adult.*—Entire plumage deep rufous, slightly darker above than below; the feathers from the forehead to the mantle have darker glossy shafts than those of the throat and fore part of the chest; the quills with broad brown ends. Bill green, passing into yellow toward the tip and on the edges; legs olive-brown. Length, 400; culmen, 38; wing, 160; tail, 229; tarsus, 43." (*Shelley.*)

A female from Bataan Province, Luzon, measures: Wing, 160; tail, 250; culmen from base, 35; tarsus, 40; middle toe with claw, 44.

Subfamily PHÆNICOPHAINÆ.

Genera.

a^1. Nostril in a vertical groove at base of bill.......................... **Dryococcyx** (p. 387)

a^2. Nostril not in a vertical groove; tail-feathers tipped with white.

- b^1. Feathers over eye lengthened, harsh, and hair-like.......... **Dasylophus** (p. 388)
- b^2. Feathers of head and throat with black scale-like tips. **Lepidogrammus** (p. 388)

Genus DRYOCOCCYX Sharpe, 1877.

Nostril round in a long vertical groove at base of bill; on side of head from bill to above posterior border of ear, a wide unfeathered space covered with minute fleshy protuberances; wing short; tail long, its feathers wide and greatly graduated.

351. DRYOCOCCYX HARRINGTONI Sharpe.

HARRINGTON'S CUCKOO.

Dryococcyx harringtoni Sharpe, Trans. Linn. Soc. Zool. (1877), **1**, 321, fig. 1; Hand-List (1900), **2**, 172; Shelley, Cat. Birds Brit. Mus. (1891), **19**, 400; McGregor and Worcester, Hand-List (1906), 64.

Balabac (*Steere, Everett*); Calamianes (*Bourns & Worcester, McGregor*); Palawan (*Everett, Lempriere, Whitehead, Platen, Steere Exp., Bourns & Worcester, Celestino, White*).

Adult (*sexes similar*).—Forehead, jaw, and narrow lines above and below eye, gray; crown and occiput olive-brown, faintly glossed with green; back, rump, and basal two-thirds of tail glossy metalic green; distal half of tail dark chestnut; chin, throat, breast, sides of neck, and incomplete collar bright rufous, shaded into chestnut on abdomen, thighs, and crissum. Length of a male from Palawan, 450; wing, 170; tail, 270; culmen from base, 39; tarsus, 38. Wing of a female, 170; tail, 278; culmen from base, 39; tarsus, 39.

"In limiting the range of this species to Palawan, Shelley seems to have overlooked the fact that it was originally discovered in Balabac by Steere. We found it to be quite abundant in the Calamianes Islands, and secured numerous specimens there. Usually found in deep forest, occasionally in second growth. Iris of female yellow; iris of male with outer nearly white ring, and inner ring of deep red or brown; bill pea-green; legs and feet leaden gray; nails black; bare skin round eye maroon.

"Five males from Palawan measure, 461 in length; wing, 164; tail, 262; culmen, 40; tarsus, 46; middle toe with claw, 35. Three females, length, 472; wing, 164; tail, 268; culmen, 38; tarsus, 39; middle toe with claw, 36. Calamianes birds are indistinguishable." (*Bourns and Worcester MS.*)

Genus DASYLOPHUS Swainson, 1837.

Nostril hidden by stiff antrorse feathers; eye surrounded by a large area of bare skin; on each side of crown, from lores to nape, a line of harsh, decomposed, and lengthened feathers; wing short: tail long and graduated.

352. **DASYLOPHUS SUPERCILIOSUS** (Cuvier).

ROUGH-CRESTED CUCKOO.

Phœnicophaus superciliosus Cuvier, Dict. Hist. Nat. (1826), **10**, 55.
Dasylophus superciliosus Shelley, Cat. Birds Brit. Mus. (1891), **19**, 403; Sharpe, Hand-List (1900), **2**, 172; McGregor and Worcester, Hand-List (1906), 64.

Bá-sac ba-yú-cu, Manila.

Catanduanes (*Whitehead*); Luzon (*Cuming, Meyer, Möllendorff, Steere, Steere Exp., Whitehead, McGregor, Celestino*); Marinduque (*Steere Exp.*).

"*Adult male.*—General plumage above glossy blackish green, with a partial blue shade; a very distinct eyebrow of bright crimson elongated tufts of hair-like feathers extending from the nostrils to behind the bare orbital patch, which latter is bright orange; the base of many of the red tufts white and forming a narrow partial eyebrow next to the bare skin; tail with broad white ends to the feathers; under parts dusky olive, inclining to black toward the chin, thighs, and under tail-coverts, the latter partially glossed with green. 'Iris pure chrome-yellow; orbital skin and base of bill fiery orange; bill pale green; legs greenish chrome; claws dark gray.' (*Everett.*) Length, 394; culmen, 38; wing, 157; tail, 241; tarsus, 38.

"*Adult female.*—Similar in plumage to the male. Length, 389; culmen, 38; wing, 155; tail, 231; tarsus, 37." (*Shelley.*)

A male from Bataan Province, Luzon, measures: Wing, 160; tail, 240; culmen from base, 36; bill from nostril, 27; tarsus, 35; middle toe with claw, 33.

Genus LEPIDOGRAMMUS Reichenbach, 1849.

Nostrils partly hidden; a large, oblong, bare space surrounding the eye; feathers of entire top of head and of chin and throat with hard, glossy scale-like tips; wings short and rounded; tail long and graduated.

353. **LEPIDOGRAMMUS CUMINGI** (Fraser).

SCALE-FEATHERED CUCKOO.

Phœnicophaus cumingi Fraser, Proc. Zool. Soc. (1839), 112.
Lepidogrammus cumingi Shelley, Cat. Birds Brit. Mus. (1891), **19**, 404; Sharpe, Hand-List (1900), **2**, 172; McGregor and Worcester, Hand-List (1906), 64.

Al-bi-ló-ri-o, Manila.

Luzon (*Cuming, Meyer, Everett, Möllendorff, Steere Exp., Whitehead, McGregor, Celestino*); Marinduque (*Steere Exp.*).

"*Adult* (*type of species*).—Upper half and sides of the head gray, passing into white on the sides of the forehead and throat; all feathers of the forehead and a broad central band through the crown to the nape, ornamented with glossy, black, horny appendages, and having the subterminal portion of each feather white; a broad band of similarly horn-tipped feathers extending down the center of the throat; back of the neck deep chestnut; remainder of the upper parts deep glossy green, inclining to purplish blue on the quills and tail; the feathers of the latter with white ends; at the base of the neck a broad golden rufous semicircle bordering the white throat and blending into the deep chestnut of the sides of the neck and chest; abdomen, thighs, and under tail-coverts brownish black, washed with a dark green gloss on the outside of the thigh-coverts; under wing-coverts deep chestnut like the breast; quills uniform glossy black; eyelashes strong and black. 'Orbital patch and iris red; bill horn-yellow; legs gray.' (*Everett.*) Length, 432; culmen, 38; wing, 155; tail, 229; tarsus, 41.

"*Nestling.*—Upper half and sides of the head, wings, and body, both above and below, dark reddish brown; the quills and base of the tail glossy greenish black, with which color other portions of the wings are mottled; a broad white end to the tail; neck all round rufous, passing into rufous-gray on the chin." (*Shelley.*)

A male from Bataan Province, Luzon, measures: Wing, 158; tail, 230; culmen from base, 37; bill from nostril, 27; tarsus, 41; middle toe with claw, 39.

Order **SCANSORES.**

BARBETS.

Bill stout and strong; nostrils at base of bill and visible from above, partly covered by long stiff bristles; wings moderate; first primary very short; tail short and nearly square; rectrices ten; toes four, the outer one reversed, middle and inner ones united for their basal joints.

Suborder CAPITONES.

Characters same as those given for the Order.

Family **CAPITONIDÆ.**

Characters same as those given for the Order.

Genus XANTHOLÆMA Bonaparte, 1854.

Bristles about bill reaching beyond its tip; a small bunch of shorter bristles on chin; a narrow circle of bare skin around eye; prevailing color green with patches of red and yellow; length, about 150 mm. Individuals of the Philippine species are solitary and may be observed perched in dead trees where they remain for an hour or more at a time, repeating a single monotonous note. Eggs three or four, pure white; deposited in a hole excavated in a limb of a tree.

Species.

a^3. Chin, throat, and subocular band yellow........................ **hæmacephalum** (p. 390)
a^4. Chin, throat, and subocular band red.. **roseum** (p. 391)

354. XANTHOLÆMA HÆMACEPHALUM (P. L. S. Müller).

YELLOW-CHINNED BARBET.

Bucco hæmacephalus P. L. S. MÜLLER, Nat. Syst. Suppl. (1776), 88.
Xantholæma hæmatocephala SHELLEY, Cat. Birds Brit. Mus. (1891), **19**, 89; BLANFORD, Fauna Brit. Ind. Bds. (1895), **3**, 98, fig. 27 (head).
Xantholæma hæmatocephalum SHARPE, Hand-List (1900), **2**, 185, 238; OATES and REID, Cat. Birds' Eggs (1903), **3**, 136; MCGREGOR and WORCESTER, Hand-List (1906), 64.

A-so-ni-pú-song, Manila; *took-took*, generally.

Calamianes ? (*Bourns & Worcester*); Leyte (*Steere Exp., Whitehead*); Luzon (*Meyer, Everett, Steere Exp., Bourns & Worcester, Whitehead, McGregor*); Mindanao (*Martens, Everett, Koch & Schadenberg, Steere Exp., Bourns & Worcester, Celestino, Goodfellow*); Mindoro (*Steere Exp., Everett, Schmacker, Bourns & Worcester, Whitehead, McGregor, Porter*); Samar (*Whitehead*). Malay and Indian Peninsulas, Burmese Provinces, Ceylon, Sumatra.

Adult (*sexes similar*).—Forehead and crown crimson, followed by a blackish cross-band extending behind eye to ear-coverts; occiput and nape bluish slate; rest of upper parts olive-green; superciliary line, subocular line, chin, and throat light sulphur-yellow; lores, jaw, and ear-coverts black; posterior to yellow throat a narrow crimson band, followed by a narrower golden yellow band; remainder of under parts pale yellow heavily streaked with dark green, lighter on middle of abdomen; exposed edges of wing and tail-feathers grass-green. Iris brown; bill and nails black; legs and bare skin about eye red. A male from Bataan Province, Luzon, measures: Length, 175; wing, 87; tail, 42; bill from nostril, 17; culmen from base, 21; tarsus, 20; middle toe with claw, 21. A female from Bataan Province measures: Wing, 83; tail, 40; bill from nostril, 16; culmen from base, 20; tarsus, 17; middle toe with claw, 18.

"*Young*.—Differs from the adult in wanting the scarlet on the head and the bright colors of the under parts; uniform green above with yellowish white edgings to wing-coverts and secondaries; a pale yellow mark above and below eye; cheeks and ear-coverts blackish; throat and abdomen pale yellow; fore neck and breast dull green, the breast and sides of body narrowly streaked with green." (*Shelley.*)

"We heard a barbet on several occasions in Busuanga, but were unable to procure any specimens. As *X. hæmacephalum* occurs in Mindoro, it seems most probable that the Busuanga bird will prove to be of this species. Called 'took-took' by the natives from its habit of perching in the top of some tree and singing 'took, took, took' by the hour. Sometimes called 'clock-bird' by the Spaniards, from the regularity with which it utters its note.

"Seven males from Mindanao average, 158 in length; wing, 78; tail, 34; culmen, 22; tarsus, 18; middle toe with claw, 45. Seven females from same locality: Length, 157; wing, 78; tail, 33; culmen, 22; tarsus, 18; middle toe with claw, 20. Iris brown; legs and feet red; nails black; skin around eye deep red." (*Bourns and Worcester MS.*)

355. XANTHOLÆMA ROSEUM (Dumont).

ROSE-THROATED BARBET.

Bucco roseus DUMONT, Dict. Sci. Nat. (1806), **4**, 52.
Xantholæma intermedia SHELLEY, Cat. Birds Brit. Mus. (1891), **19**, 97; SHARPE, Hand-List (1906), **2**, 186.
Xantholæma rosea GRANT, Ibis (1896), 558.
Xantholæma roseum McGREGOR and WORCESTER, Hand-List (1906), 64.

Cebu (*Everett, Bourns & Worcester, McGregor*); Guimaras (*Steere Exp.*); Masbate (*McGregor*); Negros (*Layard, Everett, Steere Exp., Whitehead*); Romblon (*McGregor*); Tablas (*Bourns & Worcester, Celestino*). Bali, Java, Sumatra.

Adult (*sexes alike*).—Superciliary stripe, subocular band, chin, and throat crimson; otherwise the plumage is like that of *Xantholæma hæmacephalum*. Bill and nails black; legs and bare skin about eye crimson. A male from Tablas measures: Length, 170; wing, 78; tail, 36; bill from nostril, 15; culmen from base, 21; tarsus, 19; middle toe with claw, 20. A female from Romblon measures: Length, 170; wing, 81; tail, 33; bill from nostril, 16; culmen from base, 22; tarsus, 22; middle toe with claw, 22.

Young.—A young bird has the feathers of forehead and crown blackish slate, tipped with olive-green; below eye a pale yellow band; greater and median wing-coverts and inner secondaries tipped with pale yellow; no crimson feathers; legs flesh-color; otherwise like the adult.

"Five males from Tablas average, 160 in length; wing, 79; tail, 36; culmen, 22; tarsus, 19; middle toe with claw, 20. Four females from same place: Length, 160; wing, 78; tail, 33; culmen, 22; tarsus, 18; middle toe with claw, 20. Iris dark brown; legs and feet red; nails black; bill black, except base of lower mandible, which is gray." (*Bourns and Worcester MS.*)

Shelley gives the name *Xantholæma intermedia* to the Philippine bird distinguishing it from the Javan form as having upper parts uniform green with no pale edges to the feathers; cheek-band black in front, passing into olive-gray down the sides of the red throat; under parts more strongly marked with brighter green centers to the feathers. The validity of this species is somewhat doubtful.

Order PICIFORMES.

WOODPECKERS.

Bill strong and tapering, neither hooked nor cered; its outlines straight or nearly so, its tip compressed and chisel-shaped; legs rather short; feet and nails strong; two toes in front, two or rarely one behind, all free to their bases.

Suborder PICI.

Characters same as those given for the Order.

Family **PICIDÆ.**

Subfamily PICINÆ.

Tail-feathers twelve, more or less wedge-shaped at their tips, the shafts large and very stiff.

Genera.

a^1. Three toes .... **Tiga** (p. 398)
a^2. Four toes.
  b^1. Much smaller, length less than 180 mm .... **Yungipicus** (p. 392)
  b^2. Much larger, length more than 250 mm.
    c^1. Fore breast and throat marked with large, nearly round, whitish spots; each feather narrowly edged with blackish brown. **Chrysocolaptes** (p. 399)
    c^2. Fore breast and throat without large round white spots.
      d^1. Abdomen, flanks, and thighs black or slate-gray, uniform in color with the chest.
        e^1. Smaller, wing less than 180 mm.; most of the plumage black. **Lichtensteinipicus** (p. 403)
        e^2. Larger, wing more than 210 mm.; most of the plumage slate-gray. **Mulleripicus** (p. 404)
      d^2. Abdomen, flanks, and thighs white or whitish; chest black. **Thriponax** (p. 405)

Genus YUNGIPICUS Bonaparte, 1854.

Culmen nearly straight; nasal ridge weak; nostrils hidden; first primary short and slender; second primary nearly equal to third, fourth, and fifth which are subequal; upper parts black or brown, more or less barred with white or ocherous-white; below white or buff with blackish spots and stripes; wings and tail black or blackish brown, more or less barred with white; females with no red on the head. This genus includes the smallest Philippine woodpeckers; length, about 150 mm.

*Species.**

a^1. A red spot or patch on each side of occiput, sometimes confluent (males).
  b^1. Upper back, scapulars, and wing-coverts strongly barred with white.
    c^1. Ear-coverts brown.
      d^1. White eyebrow-stripes very wide: nape and ground-color of back brownish black. Red patches on each side of the occiput very small, widely separated from one another by the nape.. **validirostris** (p. 393)
      d^2. White eyebrow-stripes narrow and ill-defined; nape and ground-color of back olive-brown. Large red patches on each side of the occiput, nearly confluent on the nape.
        e^1. White eyebrow-stripe extending to above ear-coverts. **maculatus** (p. 394)
        e^2. White eyebrow-stripe reduced to a small patch........ **menagei** (p. 395)
    c^2. Ear-coverts black: pale buff eyebrow-stripes very wide, extending down each side of the neck.
      d^1. Tail black barred with buff; ground-color of under parts pale buff, rather darker on the chest. A well-defined red patch on each side of the occiput .... **leytensis** (p. 396)
      d^2. Tail buff, barred with black: under parts pale saffron-yellow, inclining to orange or tawny-buff on the chest. A well-defined red patch on each side of the occiput.. **fulvifasciatus** (p. 396)
  b^2. Upper back, scapulars, and wing-coverts practically uniform, only a few white bars and marks down the middle of the back. Large red occiput patches confluent on the nape and forming a complete band; wide white eyebrow-stripes; chest bright saffron-yellow...................... **ramsayi** (p. 397)
a^2. No red on the head; other characters as in the males (females).

356. **YUNGIPICUS VALIDIROSTRIS** (Blyth).

LARGE-BILLED PYGMY WOODPECKER.

Picus validirostris BLYTH, Cat. Birds Mus. As. Soc. (1849), 64.
Iyngipicus maculatus HARGITT, Cat. Birds Brit. Mus. (1890), **18**, 332 (part); SHARPE, Hand-List (1900), **2**, 220 (part).
Iyngipicus validirostris BOURNS and WORCESTER, Minnesota Acad. Nat. Sci. Occ. Papers (1894), **1**, 52; GRANT, Ibis (1895), 114 (critical notes).
Yungipicus validirostris MCGREGOR and WORCESTER, Hand-List (1906), 65.

Car-pen-te-ro ma-liit', Manila; *cu-di-nang'-a*, Benguet.

Catanduanes (*Whitehead*); Lubang (*McGregor*); Luzon (*Jagor, Möllendorff, Everett, Steere Exp., Whitehead, McGregor*); Marinduque (*Steere Exp.*); Mindoro (*Steere Exp., Everett, Porter*).

Adult male.—Above blackish brown; browner on forehead and crown: ear-coverts brown; a wide white stripe from eye to nape; a very short, narrow, red line on side of occiput; middle of throat white, with a blackish line on each side and above this a white line; rest of under parts white with a fulvous wash; breast with large blackish spots; abdomen with blackish stripes; rump and upper tail-coverts white, spotted with black. A male from Lubang measures: Wing, 81; tail, 42; culmen from base, 20; tarsus, 14.

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* The key is modified from that given by Grant, *Ibis* (1896), 471.

Female.—Differs from the male in having no red on sides of occiput. A female from Bataan Province, Luzon, measures: Wing, 82; tail, 45; culmen from base, 18; tarsus, 14.

"Dr. J. B. Steere, the first naturalist before whom a series of specimens [of *Yungipicus*] from all these localities ever lay, saw at once the differences between the Luzon and Panay birds, which unfortunately he seems not to have thought worth pointing out, and rightly retained the name '*maculatus*' for the Panay species. The Luzon birds he called '*validirostris*,' with apparent reason as they most certainly are *not maculatus* and the birds described by Blyth may well have come from Luzon. The Mindanao-Basilan species he re-described under the name '*Yungipicus basilanicus*,' overlooking Hargitt's name and description entirely. * * * The other species of the genus found in the Philippine Islands with the possible exception of that from Samar and Leyte are so well-marked that no possibility of confusion exists." (*Bourns and Worcester.*)

"Quite common in Marinduque. Not abundant in the parts of Mindoro visited by us, and no specimens were gathered by the Menage Expedition. A female specimen in the Steere collection measures as follows: Wing, 79; tail, 44; culmen, 17; tarsus, 14; middle toe with claw, 15." (*Bourns and Worcester MS.*)

357. YUNGIPICUS MACULATUS (Scopoli).

SPOTTED PYGMY WOODPECKER.

Picus maculatus Scopoli, Del. Flor. et Faun. Insubr. (1786), 89.
Iyngipicus maculatus Hargitt, Cat. Birds Brit. Mus. (1890), **18**, 332 (part); Grant, Ibis (1895), 115 (critical notes); Sharpe, Hand-List (1900), **2**, 220.
Yungipicus maculatus McGregor and Worcester, Hand-List (1906), 65.

Cebu (*Bourns & Worcester, McGregor*); Guimaras (*Koch & Schadenberg*); Negros (*Whitehead*); Panay (*Sonnerat, Steere Exp., Bourns & Worcester*).

Male.—Above dark brown tinged with olive; white band from eye to nape broken; a long wide red stripe on each side of occiput; spots on throat and breast not so black as in *validirostris*. A male from Cebu measures: Length, 145; wing, 85; tail, 44; culmen from base, 19; tarsus, 15.

Female.—Similar to the male but with no red on the head. A female from Cebu measures: Wing, 86; tail, 52; culmen from base, 19; tarsus, 14.

"Quite common in Cebu; rarer in Panay. Not met with in Negros though it probably occurs there. Almost certainly absent in Masbate. Most abundant about dead trees in the open, and in low second growth.

"Three males measure, 142 in length; wing, 81; tail, 38; culmen, 19; tarsus, 16; middle toe with claw, 15. A female measures, 152 in length; wing, 80; tail, 42; tårsus, 15; middle toe with claw, 23; culmen, 18. Iris reddish brown to dark brown; legs and feet dirty olive-green; nails brown; bill nearly or quite black, leaden at tip. Food insects and larvæ." (*Bourns and Worcester MS.*)

358. **YUNGIPICUS MENAGEI** Bourns and Worcester.

MENAGE'S PYGMY WOODPECKER.

Iyngipicus menagei BOURNS and WORCESTER, Minnesota Acad. Nat. Sci. Occ. Papers (1894), **1**, 14; SHARPE, Hand-List (1900), **2**, 220.

Yungipicus menagei McGREGOR and WORCESTER, Hand-List (1906), 65.

Sibuyan (*Bourns & Worcester, McGregor*).

"*Adult male.*—General color of upper surface dark blackish brown; top of head uniform black; small spot above and behind the eye creamy white; scarlet stripes on sides of occiput shorter than in *Y. maculatus* and beginning further back; they are confluent on nape; behind and under the scarlet stripe is a partially concealed spot of creamy white; scapulars, interscapulars, and back barred with creamy white; rump creamy white, some of the feathers with narrow brownish black shaft-stripes; upper tail-coverts brownish black, broadly edged with buffy white; tail brownish black, paler at base of feathers and with both webs of feathers spotted with pale buff; wing-coverts brownish black, each feather having one or two creamy white spots on outer web; wing brownish black; outer five primaries with two or three very narrow creamy white spots on outer web, or with no spots at all; tips of inner primaries and inner webs of all primaries spotted with creamy white; secondaries similarly spotted on both webs; ear-coverts rusty brown; creamy white malar-stripe extending back of ear-coverts; chin and narrow stripe down center of throat white, bordered by a broad stripe of brownish black on each side, the tips of feathers forming side stripes being brownish white; under surface with strong fulvescent wash; feathers of upper breast with distinct brownish black shaft-marks; feathers of lower breast and abdomen with ill-defined streaks of the same color; feathers of flanks nearly white with only slight dark markings; under tail-coverts yellowish white, with dark shaft-stripes; under surface of tail slightly lighter than upper, but tips of two central pairs of feathers nearly black; under wing-coverts and axillars creamy white, spotted with brownish black; bend of wing uniform brownish black.

"The adult female lacks the scarlet head markings of the male and the creamy white spot, which is partially concealed in the male, is in the female quite conspicuous; otherwise the sexes are alike.

"Five males measure in length, 148; culmen, 20; wing, 78; tail, 40; tarsus, 15. Eight females, length, 152; culmen, 20; wing, 81; tail, 41; tarsus, 17." (*Bourns and Worcester.*)

"Common in Sibuyan; usually found in the forest. Seems not to occur in Tablas or Romblon. Iris dark brown to brownish red; legs and feet olive-brown; nails leaden; bill black, except base of lower mandible, which is gray." (*Bourns and Worcester MS.*)

359. YUNGIPICUS LEYTENSIS Steere.

LEYTE PYGMY WOODPECKER.

Yunigipicus leytensis STEERE, List Birds & Mams. Steere Exped. (1890). **9**, (error).

Yungipicus leytensis MCGREGOR and WORCESTER, Hand-List (1906), 65.

Bá-tuc, Bohol, used for all woodpeckers.

Bohol (*McGregor*); Leyte (*Steere Exp., Whitehead*); Samar (*Steere Exp., Bourns & Worcester, Whitehead*).

Male.—Forehead and crown black; wings and back barred with white; lower back and rump white, washed with pale fawn; ear-coverts black; white stripe from above eye to side of neck very broad; a conspicuous red patch on each side of occiput; throat and breast washed with pale fawn. Length of a male from Bohol, 145; wing, 83; tail, 42; culmen from base, 20.

Female.—Similar to the male but with no red patches.

"Two males from Samar average, 152 in length; wing, 80; tail, 31; culmen, 19; tarsus, 13; middle toe with claw, 17. A female, length, 159; wing, 87; tail, 37; culmen, 20; tarsus, 14; middle toe with claw, 17. Iris reddish brown; legs, feet, and nails yellowish brown; upper mandible and tip of lower black; base of lower mandible yellowish." (*Bourns and Worcester MS.*)

360. YUNGIPICUS FULVIFASCIATUS Hargitt.

HARGITT'S PYGMY WOODPECKER.

Iyngipicus fulvifasciatus HARGITT, Ibis (1881), 598; Cat. Birds Brit. Mus. (1890), **18**, 333; SHARPE, Hand-List (1900), **2**, 220.

Yungipicus basilanicus STEERE, List Birds & Mams. Steere Exped. (1890), 9.

Yungipicus fulvifasciatus MCGREGOR and WORCESTER, Hand-List (1906), 65.

Basilan (*Everett, Steere Exp., Bourns & Worcester*); Mindanao (*Everett, Bourns & Worcester, Goodfellow, Celestino*).

Male.—Above black, barred with white and washed with pale fawn; forehead and crown seal-brown; ear-coverts and side of neck black; a wide white stripe from above eye to side of nape; a conspicuous bright red stripe on side of occiput; back and rump pale fawn; lower parts strongly washed with light ocherous yellow; round spots on breast much smaller than in preceding species; abdomen and sides but faintly lined with black;

no dark spots on crissum. Length of a male from Basilan, 152; wing, 84; tail, 40; culmen from base, 19.

Female.—Similar to the male but without red patches on head. Length of a female from Basilan, 147; wing, 82; tail, 43; culmen from base, 19.

"A *younger male* has the rump and upper tail-coverts uniform; the white on the sides of the face and neck, chin and throat purer; the spots on the chest and breast smaller, and the breast not so yellow; the under wing-coverts less spotted with black, and the primaries tipped with white." (*Hargitt.*)

"Quite abundant in low second growth in Basilan. Nine males from that island average, 141 in length; wing, 81; tail, 39; culmen, 20; tarsus, 15; middle toe with claw, 17.

Three females, length, 149; wing, 84; tail, 38; tarsus, 14; middle toe with claw, 17; culmen, 19. Iris reddish brown; legs and feet dirty olive-yellow; nails brown; bill black, paler at base." (*Bourns and Worcester MS.*)

361. **YUNGIPICUS RAMSAYI** Hargitt.

RAMSAY'S PYGMY WOODPECKER.

Iyngipicus ramsayi HARGITT, Ibis (1881), 598; Cat. Birds Brit. Mus. (1890), **18**, 334; GUILLEMARD, P. Z. S. (1885), 254, pl. 17; SHARPE, Hand-List (1900), **2**, 220.

Yungipicus ramsayi MCGREGOR and WORCESTER, Hand-List (1906), 65.

Bongao (*Everett*); Sulu (*Guillemard, Bourns & Worcester*); Tawi Tawi (*Bourns & Worcester*).

Male.—Above earthy brown; white bars mostly wanting except on inner webs of quills; rump white; no well-defined spots or stripes on breast and abdomen; breast with a strong wash of saffron-yellow; sides and abomen dirty white, faintly streaked with dusky brown. A male from Tawi Tawi measures: Wing, 81; tail, 47; culmen from base, 18.

Female.—Similar to the male but with no red on the head. A female from Sulu measures: Wing, 84; tail, 42; culmen from base, 18.

"The *younger female* has some indistinct spots of pale brown upon the inner webs of the four central rectrices. 'Iris brown; bill slate-black; tarsus olive-green.' (*Guillemard.*)" (*Hargitt.*)

"Very abundant about dead trees in open fields both in Sulu and Tawi Tawi. Seven males from Sulu average, 136 in length; wing, 84; tail, 34; culmen, 20; tarsus, 15; middle toe with claw, 17. Three females from same place, length, 142; wing, 81; tail, 37; culmen, 17; tarsus, 15; middle toe with claw, 17. Iris dark brown to brownish red; legs and feet olive-brown, nails nearly black; bill black at tip, ashy gray at base." (*Bourns and Worcester MS.*)

Genus TIGA Kaup, 1836.

Three toes, two in front, one behind; bill much smaller and weaker that in *Chrysocolaptes;* culmen curved; nostrils situated near the culmen, nasal ridge weak: occipital crest full.

362. **TIGA EVERETTI** Tweeddale.

EVERETT'S THREE-TOED WOODPECKER.

Tiga everetti TWEEDDALE, Proc. Zool. Soc. (1878), 612, pl. 37; HARGITT, Cat. Birds Brit. Mus. (1890), **18**, 418; SHARPE, Hand-List (1900), **2**, 225; MCGREGOR and WORCESTER, Hand-List (1906), 65.

Balabac (*Everett*); Calamianes (*Bourns & Worcester, McGregor*); Palawan (*Steere, Everett, Lempriere, Platen, Steere Exp., Bourns & Worcester, Celestino, White*).

Male.—Forehead, crown, occipital crest, back, and rump scarlet; feathers of crown with black bases; mantle, wing-coverts, and secondaries golden yellow; a few of the mantle-feathers slightly washed with scarlet; primaries, tail, and tail-coverts blackish brown; inner webs of quills with large white spots; a wide black band from eye to ear-coverts, above this and behind eye a pale buff line bordered above with black; a pale buff line from corner of mouth passing below eye and ear-coverts to side of neck, below this a black line extending from base of lower mandible to side of neck and washed with crimson on the jaws; lower parts pale creamy buff, spotted and barred with blackish brown; a large patch on fore breast olivaceous brown, feathers just below this with large blackish brown centers. Length of a male from Palawan, 275; wing, 136; tail, not fully grown, 92; culmen from base, 31; tarsus, 23.

Female.—Differs from the male in wanting the red on jaw, forehead, and crown, these parts being black; crest-feathers black with some red near their tips. Length of a female from Palawan, 255; wing, 137; tail, 95; culmen from base, 30; tarsus, 23.

An *immature female* has no red on the crest.

"Common in Palawan and the Calamianes Islands. Food, ants and their larvæ. Observed in trees in the open fields in Culion. Found only in the forest in Palawan.

"Ten males average, 260 in length; wing, 150; tail, 84; culmen, 29; tarsus, 23; middle toe with claw, 27. Five females, length, 261; wing, 134; tail, 84; culmen, 28; tarsus, 21; middle toe with claw, 28. Iris chocolate-brown; legs and feet dirty green; bill black, except base of lower mandible, which is gray." (*Bourns and Worcester MS.*)

Genus CHRYSOCOLAPTES Blyth, 1843.

Culmen nearly straight; nasal ridge strongly marked; nostrils exposed; feathers of throat and breast with large nearly circular light spots bordered with black or blackish brown; upper parts red or yellow; inner webs of quills with large white spots; of medium size, length 250 to 280 mm.; bare space around eye larger than in *Tiga* and the crest laterally compressed instead of being spread out.

Species.

*a*¹. Mantle and back golden yellow.. **erythrocephalus** (p. 399)
*a*². Mantle and back largely crimson.
  *b*¹. Sides of head and entire lower parts strongly washed with yellow.
    xanthocephalus (p. 402)
  *b*². Sides of head and lower parts not washed with yellow.
    *c*¹. Wings and mantle crimson without any mixture of yellow.
      *d*¹. Chin and jaw not washed with crimson; light spots on throat and fore breast nearly round.. **hæmatribon** (p. 400)
      *d*². Chin and jaw washed with crimson; light spots on throat and fore breast pear-shaped .... **rufopunctatus** (p. 402)
    *c*². Wings and mantle more or less orange or yellow.
      *d*¹. Wings and mantle crimson mixed with golden yellow.... **lucidus** (p. 401)
      *d*². Mantle and wing-coverts orange with scarcely a tinge of crimson.
        montanus (p. 401)

363. CHRYSOCOLAPTES ERYTHROCEPHALUS Sharpe.

RED-FACED GOLDEN FLICKER.

Chrysocolaptes erythrocephalus SHARPE, Trans. Linn. Soc. (1877), **1**, 315, pl. 46, fig. 1; Hand-List (1900), **2**, 228; HARGITT, Cat. Birds Brit. Mus. (1890), **18**, 452; MCGREGOR and WORCESTER, Hand-List (1906), 65.

Balabac (*Everett*); Calamianes (*Bourns & Worcester, McGregor*); Palawan (*Steere, Everett, Lempriere, Platen, Steere Exp., Bourns & Worcester, Celestino. White*).

Male.—Entire head, sides of head, and upper throat crimson, the throat very pale, almost rose-color, and with three narrow black lines, one in the middle and one on each side; ear-coverts black; mantle and wings golden yellow; back and rump scarlet; tail black; feathers of under parts white with a slight buff wash and black edges, producing the spotted appearance usual in this genus; tail blackish brown. Length, about 280; wing, 153; tail, 98; culmen from base, 43; tarsus, 27.

Female.—Differs from the male in having forehead, crown, and crest olive greenish tinged with red, each feather with a light yellow spot near its tip. Wing, 147; tail, 97; culmen from base, 42; tarsus, 27.

"*Young female.*—Resembles the adult male in having the top of the head and the crest entirely red, but the color is scarlet (not crimson) and the feathers are extremely soft; there is less red on the face and upper part of the side of the neck, and only a tinge of this color on the chin and throat; the general color above and on the wings is more olive, and the feathers of the back, the scapulars, the lesser and median wing-coverts are margined with reddish orange; the scapulars and the feathers of the back and rump have the partially exposed black bases spotted with white; on the outer primaries there is a subapical spot of dull white. Described from a specimen sexed female by Mr. John Whitehead." (*Hargitt.*)

"Much less common than *T. everetti.* Never met with outside of the forest; feeds on insect larvæ. A male measures, 274 in length; wing, 147; tail, 81; culmen, 41; tarsus, 26; middle toe with claw, 32. Three females average, 274 in length; wing, 147; tail, 86; culmen, 37; tarsus, 25; middle toe with claw, 31. Iris dark red; legs and feet dirty olive, nails lighter; bill white at tip, greenish yellow at base." (*Bourns and Worcester MS.*)

364. CHRYSOCOLAPTES HÆMATRIBON (Wagler).

LUZON GOLDEN FLICKER.

Picus hæmatribon WAGLER, Syst. Av. Picus (1827), sp. 95 ♀.

Chrysocolaptes hæmatribon HARGITT, Cat. Birds Brit. Mus. (1890), **18,** 454; SHARPE, Hand-List (1900), **2,** 228; MCGREGOR and WORCESTER, Hand-List (1906), 65.

Luzon (*Meyer, Everett, Möllendorff, Steere Exp., Whitehead, Worcester, McGregor*); Marinduque (*Steere Exp.*).

Male.—Head, wings, and upper parts deep crimson; hind neck black with large pale buff spots; tail dark seal-brown with black shafts; under parts pale fulvous-buff; a black median line on upper throat and two black lines on each side of throat; lower throat and breast black, each feather with a large round buffy white spot; lower breast and abdomen faintly barred with dusky brown. Bill black; legs dirty greenish; nails brown. Length, 275; wing, 140; tail, 92; culmen from base, 40; tarsus, 29.

Female.—Differs from the male in having top of head black, each feather with a small, sharply defined, white spot. Wing, 142; tail, 88; culmen from base, 40; tarsus, 24.

365. CHRYSOCOLAPTES LUCIDUS (Scopoli).

SCOPOLI'S GOLDEN FLICKER.

Picus lucidus SCOPOLI, Del. Flor. et Faun. Insubr. (1796), 2, 89.
Chrysocolaptes lucidus HARGITT, Cat. Birds. Brit. Mus. (1890), 18, 455; SHARPE, Hand-List (1900), 2, 228; McGREGOR and WORCESTER, Hand-List (1906), 65.

Basilan (*Steere, Steere Exp., Bourns & Worcester, McGregor*): Mindanao (*Everett, Murray, Koch & Schadenberg, Steere Exp., Bourns & Worcester, Goodfellow*).

Male.—Top of head, back, and rump scarlet; mantle and wings dull golden yellow, the feathers edged with dull crimson, producing a mixture of yellow and red on these parts; tail brown; upper tail-coverts dull golden, washed with crimson; under parts olive-brown, most of the feathers with round buff spots or tips. Length, 275; wing, 142; tail, 99; culmen from base, 43; tarsus, 27.

Female.—Similar to the male but feathers on top of head olive-green, washed with dull crimson and each feather having a pale yellow spot at its tip. Wing, 134; tail, 92; culmen from base, 38; tarsus, 26.

"*Young.*—The male differs from the adult of the same sex in having less red on the feathers of the back, which, together with the scapulars, are more spotted with white, some of these spots being exposed; face duller yellow; chest and upper breast dusky olive, the feathers having close to the tip a large heart-shaped spot of pale golden buff, with a concealed spot of pure white separated from it by a dusky bar. The female has the feathers of the forehead, crown, occiput, and nape olive-golden, with dusky olive bases, the crown-feathers slightly tinged with red, those of the occiput and nape more so, the whole being covered with small rounded spots of golden white; the chin, throat, and malar region whiter, the latter without any tinge of red." (*Hargitt.*)

"Common in Mindanao and Basilan. Found both in forest and in second growth. Seven males from Mindanao measure, 262 in length; wing, 133; tail, 79; culmen, 45; tarsus, 25; middle toe with claw, 31. Four females, length, 267; wing, 134; tail, 68; culmen, 35; tarsus, 24; middle toe with claw, 31. Iris red; legs and feet dull greenish white; upper mandible black, lower greenish." (*Bourns and Worcester MS.*)

366. CHRYSOCOLAPTES MONTANUS Grant.

MOUNTAIN GOLDEN FLICKER.

Chrysocolaptes montanus GRANT, Bull. Brit. Orn. Club (1905), 16, 16; Ibis (1906), 485.

Mindanao (*Goodfellow, Celestino*).

Adult.—"Adult male and female differ from the male and female of *C. lucidus* in having the mantle and wing-coverts orange with scarcely a tinge of crimson. In the female also the top of the head and occipital crest are orange, not washed with crimson. In the male: 'Iris red; upper mandible black, lower greenish yellow; feet blackish gray.' In the female: 'Iris ruby-red; upper mandible black, lower greenish yellow; feet grayish olive.' Length, about 241; culmen, 38; wing, 132; tail, 74; tarsus, 28.

"In *C. lucidus* the greater part of the wing-coverts and the outer margins of the secondaries are crimson, giving the whole wing a crimson appearance, whereas in the present form, though some of the males have narrow crimson-orange edges to the wing-coverts, the general color of the wings is distinctly orange.

"This form may be regarded as a partially alpine representative of *C. lucidus,* of which it is no doubt a subspecies; it also occurs on the coast, for two fully adult male specimens were procured at Piso." (*Grant.*)

367. CHRYSOCOLAPTES RUFOPUNCTATUS Hargitt.

RED-SPOTTED GOLDEN FLICKER.

Chrysocolaptes rufopunctatus HARGITT, Ibis (1889), 231; Cat. Birds Brit. Mus. (1890), **18**, 457, pl. 12; SHARPE, Hand-List (1900), **2**, 228; MCGREGOR and WORCESTER, Hand-List (1906), 65.

Chrysocolaptes samarensis STEERE, List Birds & Mams. Steere Exped. (1890), 8.

Bohol (*McGregor*); Leyte (*Steere Exp., Whitehead*); Panaon (*Everett*); Samar (*Steere Exp., Bourns & Worcester, Whitehead*).

Male.—Above bright crimson, similar to *C. hæmatribon;* below black with large pear-shaped buff spots; lower parts similar to *C. lucidus* but the cheeks washed with pale crimson. Length, 275; wing, 141; tail, 87; culmen from base, 40; tarsus, 27.

Female.—Very similar to the female of *C. hæmatribon* but the entire head washed with crimson; lower parts as in the male. Wing, 140; tail, 86; culmen from base, 38; tarsus, 27.

"Usually found in the forest. Quite abundant in Samar. Three males measure, 273 in length; wing, 138; tail, 75; culmen, 36; tarsus, 25; middle toe with claw, 33. Iris dull cherry-red; legs and feet dull olive-yellow, nails black; bill nearly black. Food, larvæ." (*Bourns and Worcester MS.*)

368. CHRYSOCOLAPTES XANTHOCEPHALUS Walden and Layard.

YELLOW-HEADED GOLDEN FLICKER.

Chrysocolaptes xanthocephalus WALDEN and LAYARD, Ibis (1872), 99, pl 4; HARGITT, Cat. Birds Brit. Mus. (1890), **18**, 457; SHARPE, Hand-List (1900), **2**, 228; MCGREGOR and WORCESTER; Hand-List (1906), 65.

Tu-ba-lá-tuc, Masbate; *tuc-tuc-ba-lá-tuc,* Ticao.

Guimaras (*Steere Exp.*); Masbate (*Steere Exp., Bourns & Worcester*); Negros (*Layard, Steere, Steere Exp., Bourns & Worcester, Keay*); Panay (*Steere Exp., Bourns & Worcester*); Ticao (*McGregor*).

Male.—Forehead, crown, and occiput light crimson; lores, a narrow line over eye, cheeks, and ear-coverts light golden yellow; mantle, back, rump, secondaries, and secondary-coverts crimson, not so bright as crown; alula, primary-coverts, and primaries edged with dull golden yellow; chin yellow with a black line down the middle and a black line on each side; neck and fore breast blackish brown, each feather with a large spot of pale yellow or yellowish buff; rest of under parts uniform yellow; tail dark brown. Iris carmine; bill dark brown above, greenish below; legs pale yellow; nails dark horn-brown. Length, 260; wing, 148; tail, 90; culmen from base, 40; tarsus, 26.

Female.—Similar to the male but differs in having the crown and crest golden yellow like the sides of head. Wing, 145; tail, 94; culmen from base, 39; tarsus, 24.

"Habits like those of *C. lucidus*. Seven males from Masbate measure, 274 in length: wing, 144: tail, 80; culmen, 35; tarsus, 24; middle toe with claw, 31. Three females, length, 283; wing, 144; tail, 85; culmen, 34; tarsus, 24; middle toe with claw, 31. Iris red; legs and feet light yellow; upper mandible black, lower dull green." (*Bourns and Worcester MS.*)

Genus LICHTENSTEINIPICUS Bonaparte, 1854.

Culmen slightly curved for its entire length; nasal ridge prominent; nostrils partly concealed by plumes; occipital crest short; plumage slate-black; chin, throat, and sides of neck with a minute white spot at the tip of each feather.

Species.

a^1. Plumage black; malar region and forehead crimson in the male.
funebris (p. 403)

a^2. Plumage slaty smoke-gray; malar region scarlet in the male.
fuliginosus (p. 404)

369. LICHTENSTEINIPICUS FUNEBRIS (Valenciennes).

FUNEREAL WOODPECKER.

Picus funebris VALENCIENNES, Dict. Sc. Nat. (1826), **40**, 179.

Microstictus funebris HARGITT, Cat. Birds Brit. Mus. (1890), **18**, 492; SHARPE, Hand-List (1900), **2**, 230;* MCGREGOR and WORCESTER, Hand-List (1906), 66.

Catanduanes (*Whitehead*); Luzon (*Meyer, Heriot, Steere Exp., Whitehead, McGregor*); Marinduque (*Steere Exp.*).

Male.—Black with a slight gloss on wings and back; throat and abdomen smoky brown; lores, forehead, cheeks, and a wide space around each eye deep crimson; chin, throat, sides and back of neck with a small white spot at the tip of each feather. Iris pale yellow; bill white; legs plumbeous; nails light horn-blue. Length, 330; wing, 156; tail, 138; culmen from base, 37; tarsus, 29.

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* In Sharpe's Hand-List, Calayan is given as one of the localities for this species, a slip for Catanduanes; no woodpecker is known from Calayan.

Female.—Similar to the male but with no crimson anywhere on the head; the cheeks, like the throat, spotted with white. Length, 315; wing, 155; tail, 133; culmen from base, 34; tarsus, 27.

This species is fairly common in the lowland forests of Luzon.

370. LICHTENSTEINIPICUS FULIGINOSUS (Tweeddale).

SOOTY WOODPECKER.

Mulleripicus fuliginosus TWEEDDALE, Ann. & Mag. Nat. Hist. (1877), **20**, 534; Proc. Zool. Soc. (1877), 821, pl. 83.

Microstictus fuliginosus HARGITT, Cat. Birds Brit. Mus. (1890), **18**, 492; GRANT, Ibis (1897), 246; SHARPE, Hand-List (1900), **2**, 230; MCGREGOR and WORCESTER, Hand-List (1906), 66.

Leyte (*Whitehead*); Mindanao (*Everett, Steere Exp., Bourns & Worcester, Celestino*); Samar (*Steere Exp., Whitehead*).

"*Adult male* (*type of species*).—Plumage slaty gray, the whole of the body, wings, and tail uniform, the head (except the loral and orbital region) and neck spotted with white, the spots on the top of the head and on the nape having a striped character, those on the chin and throat larger and more or less triangular in shape; a large patch of brilliant scarlet covers the entire malar region and extends upwards nearly to the eye; shafts of the quills and of the tail-feathers dusky black. 'Iris naples-yellow.' (*Everett.*) Length, 305; culmen, 41; wing, 160; tail, 110; tarsus, 30." (*Hargitt.*)

"*Adult female.*—Closely resembles the female of *M. funebris,* but may be distinguished by the general color of the plumage being grayer; the ground-color of the chin and throat gray like the cheeks, and the white dots distinctly larger. In the female of *M. funebris* the chin and throat are brownish gray, and contrast with the blackish gray cheeks. Length, 269; culmen, 37; wing, 147; tail, 104; tarsus, 28." (*Grant.*)

Genus MULLERIPICUS Bonaparte, 1854.

Of large size; bill very powerful; proximal half of culmen curved, distal half straight; nostrils large, oval, and covered by feathers; nasal ridge prominent; feathers of head short; no crest.

371. MULLERIPICUS PULVERULENTUS (Temminck).

GREAT SLATY WOODPECKER.

Picus pulverulentus TEMMINCK, Pl. Col. (1826), 389.

Hemilophus pulverulentus HARGITT, Cat. Birds Brit. Mus. (1890), **18**, 494.

Alophonerpes pulverulentus SHARPE, Hand-List (1900), **2**, 230.

Mulleripicus pulverulentus MCGREGOR and WORCESTER, Hand-List (1906), 66.

Balabac (*Everett*); Palawan (*Whitehead, Platen, Steere Exp., Bourns & Worcester, Celestino, White*). Sumatra, Cochin China, Malay Peninsula, Burmese provinces, northwestern India, Java, Borneo, Himalayas.

Adult male.—Blackish slate, abdomen and crissum lighter; feathers of crown, occiput, neck, sides of neck, and breast with small gray tips producing a spotted appearance, most pronounced on occiput and neck; on malar region below each eye a large patch of light crimson; chin and throat saffron-yellow, washed with pink or light red on the posterior part. Length of a male from Palawan, 465; wing, 235; tail, 165; culmen from base, 65; tarsus, 38.

Adult female.—Differs from the male in having no red on cheeks and but a slight wash of pink on the throat. Wing, 235; tail, 180; culmen from base, 64; tarsus, 35.

"*Young male.*—Differs from the adult male in having the entire malar region, forehead, and greater part of the crown washed with pale crimson, this color being very faint upon the crown; the head darker slaty gray and the tips of the feathers less white; upper parts rather browner; the under surface of the body unspotted; abdomen, sides of the body, and under tail-coverts more of a dusky brown, but assuming the dark slaty-gray plumage; chin, throat, and fore neck light buff, the latter washed with pale red. It has also a pale crimson stripe, rather than a spot, and the hinder part of the malar region, as in the adult." (*Hargitt.*)

"Quite abundant in some parts of Palawan. Shot on dead trees in clearings, and in low scrub. We failed to find it in the Calamianes. Two males average, 467 in length; wing, 227; tail, 147; culmen, 59; tarsus, 34; middle toe with claw, 41. A female, length, 457; wing, 220; tail, 140; culmen, 59; tarsus, 31; middle toe with claw, 44. Iris very dark brown; legs and feet dull leaden, nails nearly black; upper mandible black except along gape and at base where it is gray; lower mandible light gray." (*Bourns and Worcester MS.*)

Genus THRIPONAX Cabanis and Heine, 1863.

Culmen nearly straight; nasal ridges well developed; nostrils scantily covered; plumage mostly black, abdomen white; both sexes with a full scarlet crest; length, from 380 to 410 mm.

Species.

a^1. Breast black, without light edges to the feathers.
  b^1. Rump black .... **javensis** (p. 406)
  b^2. Rump with a white band.
    c^1. White spot at base of primaries smaller; bill stouter, width at anterior border of nostrils, 14 to 16 mm.; lower mandible dirty ivory-yellow. **hargitti** (p. 409)
    c^2. White spot at base of primaries larger; bill more slender, width at anterior border of nostrils, 12 to 14 mm.; lower mandible blackish. **mindorensis** (p. 408)
a^2. Breast, throat, and chin black mixed with white and buff.
  b^1. Light buff or whitish edges of breast-feathers very wide, giving the breast a mottled appearance .... **pectoralis** (p. 407)
  b^2. Light buff edges of breast-feathers narrow, forming numerous crescentic markings .... **multilunatus** (p. 408)

372. **THRIPONAX JAVENSIS** (Horsfield).

MALAY BLACK WOODPECKER.

Picus javensis HORSFIELD, Trans. Linn. Soc. (1821), **13,** pt. 1, 175.
Thriponax javensis HARGITT, Cat. Birds Brit. Mus. (1890), **18,** 498 (part); GRANT, Ibis (1894), 409; SHARPE, Hand-List (1900), **2,** 231 (part); MCGREGOR and WORCESTER, Hand-List (1906), 66 (part).*
Thriponax javensis var. *suluensis* BLASIUS, Jour. für Ornith. (1890), 140.

Tul-tu-lan, Benguet.

Bongao (*Everett*); Cebu (*Bourns & Worcester, McGregor*); Luzon (*Meyer, Everett, Heriot, Whitehead, McGregor*); Mindanao (*Koch & Schadenberg, Steere, Everett, Steere Exp., Bourns & Worcester, Goodfellow*); Sulu (*Platen, Bourns & Worcester*); Tawi Tawi (*Bourns & Worcester, Everett*). Malay Peninsula, southern Tenasserim, Sumatra, Java, Borneo, Banka.

Adult male.—Nasal tufts black; forehead, crown, occipital crest, and malar stripe bright scarlet; feathers of forehead and crown with white bases; feathers of crest with white bases; remainder of head, chin, throat, breast, and entire upper parts black; feathers of lower back with concealed white or gray bases; a few narrow white stripes on throat and behind ear-coverts; abdomen and flanks pale yellow or buffy white; thighs black, some of the feathers with pale buff edges; under tail-coverts black; wings and tail black; three or four primaries white at base of inner web; secondaries with considerable white on inner webs. Length, about 435; wing, 210; tail, 170; culmen from base, 53; bill from nostril, 41; width of bill at gape, 19; tarsus, 32.

Adult female.—Similar to the male but the forehead, crown, and malar region black, occipital crest alone being red. These sexual differences are found in all the Philippine species of the genus. Wing, 200; tail, 160; culmen from base, 47; bill from nostril, 38; width of bill at gape, 18; tarsus, 31.

Here described from Luzon specimens. An adult male from Trong, lower Siam, differs only in having a slightly larger bill and longer wing.

Young birds have the abdomen white, and the malar stripe entirely black or with a few red spots.

"If the Luzon record of this species is correct, and we can see no reason for doubting it, the distribution of *T. javensis* within the Philippines is very peculiar. Why should it disappear in Samar and Leyte, to reappear in Cebu and Luzon? There is not the slightest doubt as to the identity of the Cebu birds, of which we have a fine series.

"Three males from Sulu average, 400 in length; wing, 185; tail, 146;

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* Cf. references to Clarke under *Thriponax hargitti.*

culmen, 45; tarsus, 28; middle toe with claw, 39. Two females from same place, length, 384; wing, 192; tail, 141; culmen, 42; tarsus, 28; middle toe with claw, 36.

"Cebu birds are slightly larger. Two males average, 403 in length; wing, 204; tail, 158; culmen, 48; tarsus, 29; middle toe with claw, 41. Two females, length, 407; wing, 198; tail, 159; culmen, 45; tarsus, 29; middle toe with claw, 37.

"Iris varies from light to dark yellow; legs and feet gray; nails nearly black; upper mandible black, lower dirty white. Food, ants." (*Bourns and Worcester MS.*)

373. THRIPONAX PECTORALIS Tweeddale.

TWEEDDALE'S BLACK WOODPECKER.

Thriponax pectoralis TWEEDDALE, Proc. Zool. Soc. (1878), 340; HARGITT, Cat. Birds Brit. Mus. (1890), **18,** 500, pl. 13; SHARPE, Hand-List (1900), **2,** 23; MCGREGOR and WORCESTER, Hand-List (1906), 66.

Bohol (*McGregor*); Leyte (*Everett, Steere Exp., Whitehead*); Panaon (*Everett*); Samar (*Steere Exp., Bourns & Worcester, Whitehead*).

Adult male.—Upper parts as in *T. javensis;* chin and throat white with narrow black shaft-stripes; ear-coverts and sides of neck black, narrowly streaked with white; breast-feathers black with edges and tips light buff; rest of under parts as in *T. javensis* but with more buff on the thighs. A few feathers of breast and hind neck may be tipped with red but this character is variable. Length of a male from Bohol, about 450; wing, 224; tail, 200; culmen from base, 50; bill from nostril, 39; width of bill at base, 19; tarsus, 33.

"*Adult female.*—Has the forehead and crown black; the malar region white, striped with black. In other respects like the adult male. Length, 419; culmen, 48; wing, 199; tail, 169; tarsus, 34.

"*Young male.*—Differs from the adult of the same sex in having the white of the throat and fore neck duller, and the striations less intense black; the feathers of the malar region white, with dusky bases, a few assuming the red tips." (*Hargitt.*)

"A well-marked species which takes the place of *T. javensis* in Panaon, Leyte, and Samar. Quite abundant in Samar. Usually met with in the forest. Occasionally seen in second growth.

Three males average, 434 in length; wing, 198; tail, 159; culmen, 51; tarsus, 33; middle toe with claw, 48. Two females, length, 419; wing, 201; tail, 154; culmen, 47; tarsus, 32; middle toe with claw, 41. Iris light yellow; legs and feet light slate; nails nearly black; upper mandible black, lower grayish white." (*Bourns and Worcester MS.*)

374. **THRIPONAX MULTILUNATUS** McGregor.

BASILAN BLACK WOODPECKER.

Thriponax javensis McGregor and Worcester, Hand-List (1906) 66. (part).

Thriponax multilunatus McGregor, Phil. Jour. Sci. (1907), 2, sec. A. 285.

Basilan (*Everett, Steere Exp., Bourns & Worcester, McGregor*).

Adult male.—Forehead, crown, crest, and malar-stripe bright crimson, the feathers whitish at base; nasal plumes blackish; lores and a wide transocular band black; rest of upper parts, wings, and tail black; second, third, and fourth primaries with a white spot at base of inner web; third to seventh primaries with a white spot at tip of outer web; inner secondaries white at base; chin, throat, and postauricular area black, each feather narrowly margined with whitish, producing a striped appearance; breast black, the feathers of fore part narrowly bordered with buffy, producing a series of crescentic light marks; abdomen and sides buffy white; thighs black, each feather widely bordered with light buff; vent and tail-coverts black. Length in flesh, 420; wing, 210; tail, 166; culmen from base, 52; tarsus, 29.

Adult female.—Forehead, crown, and malar-stripe black, otherwise like the male. Wing, 215; tail, 185; culmen from base, 50; bill from nostril, 38; tarsus, 31.

375. **THRIPONAX MINDORENSIS** Steere.

MINDORO BLACK WOODPECKER.

Thriponax mindorensis Steere, List Birds & Mams. Steere Exped. (1890), 8; Grant, Ibis (1896), 473; Sharpe, Hand-List (1900), 2, 231; McGregor and Worcester, Hand-List (1906), 67.

Ma-nuc'-toc, Mindoro.

Mindoro (*Steere Exp., Schmacker, Bourns & Worcester, Everett, McGregor, Porter*).

Adult.—Very much like *T. javensis* but clearly distinguished from that species by having a wide light buff or white band across the lower back; from *T. hargitti* it differs in having a more slender bill which is entirely black. A female measures: Length, 394; wing, 215; tail, 170; culmen from base, 47; bill from nostril, 35; width of bill at base, 18; tarsus, 31.

"Very abundant in the interior of Mindoro. Two females average, 381 in length; wing, 191; tail, 145; culmen, 45; tarsus, 27; middle toe with claw, 37. Iris straw-yellow; legs and feet leaden; nails nearly black; bill black." (*Bourns and Worcester MS.*)

376. **THRIPONAX HARGITTI** Sharpe.

HARGITT'S BLACK WOODPECKER.

Thriponax hargitti SHARPE, Ibis (1884), 317, pl. 8; Hand-List (1900), **2**, 231, no. 9; HARGITT, Cat. Birds Brit. Mus. (1890), **18**, 505; CLARKE, Ibis (1895), 474; (1898), 121;* GRANT, Ibis (1896), 558; MCGREGOR and WORCESTER, Hand-List (1906), 67.

Thriponax philippinensis STEERE, List Birds & Mams. Steere Exped. (1890), 8; BOURNS and WORCESTER, Minnesota Acad. Nat. Sci. Occ. Papers (1894), **1**, 53.

Thriponax philippensis SHARPE, Hand-List (1900), **2**, 231, no. 8.

Guimaras (*Steere Exp.*); Masbate (*Steere Exp., Bourns & Worcester, McGregor*); Negros (*Steere Exp., Bourns & Worcester, Keay*); Panay (*Bourns & Worcester*); Palawan (*Steere, Whitehead, Platen, Steere Exp., Bourns & Worcester*).

Adult.—Differs from *T. javensis* in having a wide band of light buff across the lower back thus resembling *T. mindorensis* from which it differs in having a much stouter bill and in having lower mandible gray or horn-white; lower mandible in dry skin dull yellow with a gray tip. In males the red malar-stripe is longer than in the other species mentioned and many of the black feathers of chin and sides of neck are tipped with red. Length of male, 420; wing, 220; tail, 180; culmen from base, 51; bill from nostril, 38; width of bill at base, 20; tarsus, 36. Wing of female, 218; tail, 185; culmen from base, 52; bill from nostril, 38; tarsus, 33.

The description and measurements above are from specimens taken in Masbate, one of the type localities of *Thriponax philippinensis* of Steere. In Catalogue of the Birds in the British Museum the type locality of *Thriponax hargitti* is given as Palawan. Of these two supposed species Grant says: "The types have been compared and agree in all particulars." It seems to me almost incredible that this genus should be represented by the same species in Masbate and Palawan but as I have seen no specimens from the latter island I follow Grant's identification.

"Iris yellow; legs, feet, and nails leaden; upper mandible black, lower horn-gray. Three males average, 430 in length; wing, 207; tail, 174; culmen, 50; tarsus, 48; middle toe with claw, 39. Three females, length, 410; wing, 204; tail, 169; culmen, 50; tarsus, 31; middle toe with claw, 39." (*Bourns and Worcester MS.*)

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* Cf. Grant, Ibis (1896), 473, under *Thriponax mindorensis*.

Order EURYLÆMIFORMES.

BROAD BILLS.

Bill very wide and depressed; nostrils basal, round, and exposed; third and fourth toes united for nearly half their length.

Family EURYLÆMIDÆ.

Characters same as those given for the Order.

Subfamily EURYLÆMINÆ.

Genus SARCOPHANOPS Sharpe, 1877.

Eye surrounded by a wide fleshy wattle; tail short, rectrices strongly graduated; wings moderate, first primary shorter than sixth, fourth longest; a well-defined wing-bar across the secondaries.

Species.

a^1. Back gray; wing-bar yellow and white	**steeri** (p. 410)
a^2. Back vinaceous; wing-bar vinaceous and white	**samarensis** (p. 411)

377. SARCOPHANOPS STEERI (Sharpe).

STEERE'S BROADBILL.

Eurylæmus steerii SHARPE, Nature (1876), 14, 297.
Sarcophanops steerii SHARPE, Trans. Linn. Soc. (1877), 1, 344, pl. 54; SCLATER, Cat. Birds Brit. Mus. (1888), 14, 462; BOURNS and WORCESTER, Occ. Papers Minnesota Acad. Nat. Sci. (1894), 1, 53; HARTERT, Genera Avium, Eurylæmidæ (1905), 6, pl. 1, fig. 6 (head).
Sarcophanops steerei SHARPE, Hand-List (1901), 3, 2; MCGREGOR and WORCESTER, Hand-List (1906), 68.

Basilan (*Steere, Everett, Steere Exp., Bourns & Worcester, McGregor*); Dinagat (*Everett*); Mindanao (*Steere Exp., Platen, Bourns & Worcester, Celestino*).

Adult male.—Forehead and crown deep purple; a few spots of scarlet on occiput, not always present; feathers at base of bill with white bases; lores black; a white collar around neck; hind neck, back, and scapulars slate-gray; rump and tail-coverts chestnut, tipped with purple; tail chestnut; chin, throat, and sides of head black; breast, abdomen, and sides lilac, bases of the feathers white; middle of abdomen white; under tail-coverts white, tinged with lilac; thighs blackish gray; wings black; edge of wing and of first primary white; a distinct bar of golden yellow on secondaries, changing to white on inner secondaries; wing-lining black, axillars white. A male from Basilan measures: Wing, 85; tail, 64; culmen from base, 22; bill from nostril, 14; tarsus, 20; middle toe with claw, 22.

Adult female.—Similar, but under parts pure white except the black chin and throat and gray thighs. A female from Basilan measures:

Wing, 86; tail, 64; culmen from base, 23; bill from nostril, 15; tarsus, 20; middle toe with claw, 21.

"There has been some difference of opinion between Dr. Steere and Mr. Everett as to the color of the eyes of this interesting species. Both were right and there was abundant room for still more divergence of opinion. The eyes of *S. steerii* are golden yellow, bright green, or a beautiful blue according to the way the light strikes them.

"The young show some interesting plumage changes. An immature male has the under surface white, some of the feathers tipped with pale lilac; chin black but throat white, a few black feathers just appearing; head as in adult but white nuchal collar much narrower; back and wing-coverts washed with olive-green, the wing-bar being ill-defined and paler than in adult; rump and tail as in adult. Bill as in adult except center of upper mandible which is black.

"Another young male, slightly older, has chin and throat black, the feathers narrowly tipped with white and shows more lilac on breast. Crown, nape, and back washed with olive-green, purple appearing on one or two feathers of forehead. Bill pure black.

"A young female is like the first young male described but without lilac on under surface." (*Bourns and Worcester.*)

"Usually found in deep woods in small flocks; once seen in a mangrove swamp close to the sea. It usually takes short flights, making a loud whir with its wings, and sits perfectly still for some time after. When perched on a limb, it has a curious habit of snapping its bill which produces a sound audible for some distance. Its food consists of insects which it holds in its bill and raps several times on a limb before swallowing. Its note is a plaintive whistle and it may be readily decoyed by imitating its call. At the discharge of a gun it does not fly away but sits perfectly still.

"Iris blue, green, or golden according to the light; bill, legs, feet, and eye-wattle light blue; nails nearly white. Ten males from Basilan average: Length, 174; wing, 84; tail, 60; culmen, 24; tarsus, 22; middle toe with claw, 25. Ten females average: Length, 172; wing, 85; tail, 87; culmen, 24; tarsus, 20; middle toe with claw, 24." (*Bourns and Worcester MS.*)

378. **SARCOPHANOPS SAMARENSIS** Steere.

SAMAR BROADBILL.

Sarcophanops samarensis Steere, List Birds & Mams. Steere Exp. (1890), 23; Bourns and Worcester, Minnesota Acad. Nat. Sci. Occ. Papers (1894), 1, 54; Hartert, Genera Avium, Eurylæmidæ (1905), 6; Sharpe, Hand-List (1901), 3, 2; McGregor and Worcester, Hand-List (1906), 68.

Leyte (*Whitehead*): Samar (*Steere Exp., Bourns & Worcester, Whitehead*).

"*Adult male.*—Much smaller than *S. steerii.* Head, back, and scapulars purple somewhat mottled with brown; white nuchal collar very narrow and ill-defined; purple of back gradually changing into brown on rump; tips of scapulars black; upper tail-coverts and tail bright chestnut; upper wing-coverts black; tertiaries barred across both webs with pure white; three secondaries with lilac spot on outer webs; tips of secondaries and tertiaries black; primaries blackish brown; chin, throat, sides of face, ear-coverts, and lores pure black; breast, abdomen, and flanks lilac, deeper on upper breast, lighter on abdomen; thighs black, the feathers tipped with brown; under tail-coverts light buff; axillars white; under wing-coverts black; bend of wing white.

"*Female* like male except that the lilac of under surface is replaced by white. Bill, legs, feet, nails, and eyes exactly as in *S. sterii* and the young show the same plumage changes as in that species.

"Average measurements from five males: Length, 153; wing, 78; tail, 62; culmen, 22; tarsus, 20." (*Bourns and Worcester.*)

"Habits exactly like those of the preceding species; abundant in Samar but irregularly distributed." (*Bourns and Worcester MS.*)

A MANUAL

OF

PHILIPPINE BIRDS

BY

RICHARD C. McGREGOR

PART II

PASSERIFORMES

12 [illegible]

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Order PASSERIFORMES.

PASSERINE BIRDS.

Bill hard and horny, never extensively membranous, softly tumid, nor cered; nostrils without open communication; greater wing-coverts not more than one-half the length of the secondaries; primaries usually ten, more rarely nine; rectrices twelve, rarely ten; feet adapted for perching; hind toe and claw well developed and inserted on the level of the anterior toes; hind claw equal to, or longer than, the claw of middle toe; anterior toes three in number, never versatile, always free except when webbed or fused at base.

The order Passeriformes includes nearly as many species, among Philippine birds, as all the other orders combined. Most of the species of this order are less than 200, and very few of them are more than 300, millimeters in length. The small birds belonging to other orders are extremely few. Most ornithologists consider the Passeriformes to be the order of highest rank among birds, chiefly because of the highly developed vocal powers of many of the species. In the arrangement of the families of this order, the *Turdidæ, Fringillidæ,* and *Corvidæ* have variously been assigned to the place indicating the highest development.

*Suborders.**

*a*¹. Tarsus with its hinder portion somewhat compressed, but the posterior edge rounded and entire.. **Mesomyodi**, or **Clamatores** (p. 413)

*a*². Tarsus with its hinder portion compressed and forming a sharp edge; or else the hinder face rounded and distinctly divided by transverse joints.
Acromyodi, or **Oscines** (p. 422)

Suborder MESOMYODI.

Characters the same as those given in the key to Suborders.

Family PITTIDÆ.

Rectrices twelve; tarsus booted, or with obsolete, diagonal divisions.

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* Apart from the characters presented by the tarsal envelope, this division into suborders is fully justified by internal structures, but as these can not be examined in skins they are omitted above.

Key to the suborders of Passeriformes based upon internal characters.

*a*¹. Intrinsic muscles of the syrinx fixed to the middle of the bronchial semirings, the muscles simple, small, and few.. **Mesomyodi**

*a*². Intrinsic muscles of the syrinx fixed to the ends of the bronchial semirings, the muscles complex and numerous.. **Acromyodi**

Genus PITTA Vieillot, 1816.

Bill stout and compressed; culmen curved; gonys slightly curved; nostrils large and oval, entirely exposed; rictal and frontal bristles very short; wings short and curved to the body; first primary nearly as long as second, fourth longest; secondaries shorter than the primaries by the length of hind toe without claw; tail short, soft, and square, scarcely longer than its under coverts; tarsus and toes well developed, the former longer than tail and the latter extending entirely beyond the tip of tail. Colors various combinations of black, white, brown, bright scarlet, green, and blue.

Species.

a^1. Entire abdomen, flanks, and under tail-coverts bright red.

b^1. Smaller; tarsus, less than 38 mm.; secondaries and secondary-coverts dark blue.

c^1. Back entirely green, including the scapulars; chest green with a slight wash of blue on the central portion .... **erythrogastra** (p. 414)

c^2. Back, including the scapulars, entirely cobalt; chest bright blue, only the sides greenish .... **propinqua** (p. 416)

b^2. Larger; tarsus, more than 45 mm.; secondaries and secondary-coverts olive-green .... **kochi** (p. 417)

a^2. Only the under tail-coverts, crissum, and middle of abdomen red.

b^1. Throat and chin entirely black.

c^1. Smaller .... {**atricapilla** (p. 418)
rothschildi (p. 420)

c^2. Larger .... **mulleri** (p. 419)

b^2. Throat mostly white.

c^1. Breast and sides light blue .... **steeri** (p. 420)

c^2. Breast and sides fawn .... **moluccensis** (p. 421)

379. PITTA ERYTHROGASTRA Temminck.

RED-BREASTED PITTA.*

Pitta erythrogastra TEMMINCK, Pl. Col. (1823), 212; SCLATER, Cat. Birds Brit. Mus. (1888), 14, 432; GRANT, Ibis (1896), 121; WHITEHEAD, Ibis (1899), 243 (critical remarks on *Pitta propinqua*).

Pitta erythrogaster SHARPE, Hand-List (1901), 3, 182; MCGREGOR and WORCESTER, Hand-List (1906), 68.

A-li-mu-cung, Ticao; *hu-hu-co*, Ticao and Masbate; *li-o-co*, Manila.

Basilan (*Everett, Bourns & Worcester, McGregor*); Bohol (*McGregor*); Bongao (*Everett*); Cagayancillo (*McGregor*); Camiguin N. (*McGregor*); Calamianes (*Bourns & Worcester*); Cebu (*Bourns & Worcester*); Guimaras (*Steere Exp.*); Lubang (*McGregor*); Luzon (*Cuming, Heriot, Steere Exp., McGregor, Whitehead*); Marinduque (*Steere Exp.*); Masbate (*McGregor, Bourns & Worcester*); Mindanao (*Steere, Murray, Everett, Steere Exp., Bourns & Worcester, Goodfellow,*

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* The pittas are known to some authors as "ant thrushes" but the latter name belongs properly to certain members of the South American family *Formicariidæ*. The name "ground thrush" appears to have greater validity as the English name for the *Pittidæ*, but the use of the name "thrush" in connection with this family is misleading and unnecessary.

Celestino); Mindoro (*Steere Exp., Bourns & Worcester, McGregor*); Negros (*Keay*); Palawan (*Bourns & Worcester*); Panay (*Bourns & Worcester*); Romblon (*Bourns & Worcester, McGregor*); Samar (*Steere Exp.*); Sibutu (*Everett*); Sibuyan (*Bourns & Worcester, McGregor*); Siquijor (*Bourns & Worcester*); Sulu (*Platen*); Tablas (*Bourns & Worcester*); Tawi Tawi (*Bourns & Worcester*); Ticao (*McGregor*).

Adult (*sexes similar*).—Head, sides of head, and neck reddish brown, most intense on occiput; on each side of head a blackish brown band from nostril to above eye; a blue collar, followed by a dull green patch on mantle; back, rump, tail, and most of the wing blue; chin brown, merging into black on fore breast, followed by a wide dull green pectoral band which is more or less mixed with blue in its middle; rest of under parts bright scarlet; longest under tail-coverts tipped with blue; primaries black with blue tips, the third and fourth each with a white spot half way between tip and base; wing-coverts blue, a few of the outer lesser series with large white spots; tail blue above, black below. Length, 160 to 180. A male from Romblon measures: Wing, 97; tail, 35; culmen from base, 21; tarsus, 35. A female from Bohol, wing, 97; tail, 36; culmen from base, 21; tarsus, 36.

Young.—The young bird is very different from the adult, particularly in the coloring of the lower parts which are light earthy brown with very little red on the abdomen; upper parts dull brown; as the bird becomes older the adult plumage gradually makes its appearance; a great number of specimens would be necessary to show all the changes from young to adult.

"The red-breasted pitta is common throughout the islands; it is found on the ground, usually in dark places in the forest and in second growth. Ten males from Mindanao average: Length, 170; wing, 98; tail, 37; culmen, 22; tarsus, 34; middle toe with claw, 29. Six females from the same place, length, 162; wing, 98; tail, 37; culmen, 22; tarsus, 34; middle toe with claw, 29. Iris dark brown; legs, feet, and nails dark brown; bill black." (*Bourns and Worcester MS.*)

"Nearly mature males of this red-bellied pitta were collected near Cape Engaño. Mr. Whitehead is of the opinion, Ibis (1893), 505, that *Pitta propinqua* Sharpe, is not specifically distinct from the present species. The type of *P. propinqua* came from the Island of Balabac, and since Mr. Whitehead examined the British Museum series we have obtained, through Mr. Everett, an adult male from the typical locality. This bird agrees perfectly with Dr. Sharpe's original description, Trans. Linn. Soc. (1877), 1, 330, and differs much from the typical examples of *P. erythrogastra*. It must, however, be stated, that both forms were found by Mr. Whitehead in the Island of Palawan, one of his specimens being almost typical *P. propinqua*, and, given a larger series, we should probably find that the two forms pass more or less one into the other in Palawan. Still *P. propinqua* is a very well-marked insular form, and I consider Dr. Sharpe fully justified in regarding it as distinct. Both he and Dr. Sclater are certainly mistaken, however, in regarding the '♂ juv. Dumalon, Mindanao,' collected by Prof. Steere, as the young of *P. propinqua,* the Mindanao bird being typical *P. erythrogastra.*" (*Grant.*)

380. PITTA PROPINQUA (Sharpe).

PALAWAN PITTA.

Brachyurus propinquus SHARPE, Trans. Linn. Soc. 2d. ser. Zool. (1877), 1, 330.

Pitta propinqua SCLATER, Cat. Birds Brit. Mus. (1888), 14, 433; EVERETT, Ibis (1895), 28; SHARPE, Hand-List (1901), 3, 182; MCGREGOR and WORCESTER, Hand-List (1906), 68.

Balabac (*Steere, Everett*); Palawan (*Whitehead, Platen, Bourns & Worcester, Everett*).

Adult.—"Back entirely cobalt, including the scapulars; only the middle of the back green washed with blue, forming a band across the back; throat entirely brownish black, becoming jet-black on the fore neck; chest bright blue, the sides only greenish; under wing-coverts dull blue." (*Sharpe.*)

"Dr. Sharpe founded his *Brachyurus propinquus* on an adult male bird obtained by Dr. Steere in Balabac. Dr. Steere obtained a second specimen of a red-bellied pitta, also a male, but in very immature plumage, at Dumalon, near Zamboanga, in Mindanao, and this bird Dr. Sharpe assigned also to be *B. propinquus,* though not without hesitation. Owing to the meager material available, the validity of this species has always been open to question; and hence I made a point of securing a series of these red-bellied pittas from Balabac and Palawan, with the result that it has at length become possible to compare adult birds from Balabac with adult birds from Luzon, Mindanao, and Palawan.

"The characters relied upon by Dr. Sharpe as distinguishing *P. propinqua* from typical *P. erythrogastra* were: (1) *Back* entirely cobalt, including the *scapulars;* only the middle of the back green, washed with blue, forming a band across the back. (2) *Throat* entirely brownish black, becoming jet-black on the fore neck. (3) *Chest* bright blue, the sides only greenish. (4) *Under wing-coverts* dull blue, instead of grayish brown.

"Of these characters the last three appear to be of no value, as birds from Luzon and Mindanao present them in greater or less degree, and I have come to the conclusion that they belong to the fully-adult birds, from whatever locality. But on viewing the upper surfaces of a series of Balabac-Palawan specimens side by side with a series of Luzon-Mindanao birds, the first mentioned character is at once seen to be a good one, the green tract on the back of the former series forming a comparatively narrow band, whereas in the latter series it extends nearly to the rump. It is noticeable, further, that the cobalt and green hues are much brighter than in any of the specimens from Luzon or Mindanao, though it is no doubt very possible that this may be owing to the freshness of the Balabac-Palawan skins.

"I have, therefore, no longer any doubt that *P. propinqua* differs sufficiently from *P. erythrogastra* to make it necessary that it should be separated from the latter by the appropriate appellation which Dr. Sharpe originally bestowed upon it. And in this case it will follow that the locality 'Mindanao' given in the 'Catalogue of Birds' will require correction, as, indeed, it would in any case, for the type was described from Balabac." (*Everett.*)*

381. **PITTA KOCHI** Bruggemann.

KOCH'S PITTA.

Pitta kochi BRUGGEMANN, Abhandl. naturw. Ver. Bremen (1877), 65, pl. 3, fig. 6; SCLATER, Cat. Birds Brit. Mus. (1888), 14, 433; GRANT, Ibis (1895), 457; WHITEHEAD, Ibis (1899), 244 (habits); SHARPE, Hand-List (1901), 3, 182; McGREGOR and WORCESTER, Hand-List (1906), 68.
Erythropitta kochi, TWEEDDALE, Proc. Zool. Soc. (1878), 430, pl. 26.

Luzon (*von Othberg, Whitehead*).

"This species was based on a specimen in the Darmstadt Museum, of which Mr. Gould gives the subjoined description:

"'General color above dull olive-brown, with somewhat of a ruddy tint on the sides of the neck and mantle; wing-coverts lilac-gray, the primary-coverts and quills blackish brown; the primaries externally grayish towards their ends; the secondaries and inner greater coverts olive-brown, washed with lilac-gray on the outer webs; the second, third, and fourth primaries with a large white spot on the inner web, the last-named having the white spot on the outer web as well; upper tail-coverts and tail lilac-gray, the latter darker; forehead and crown, as well as the lores, region of the eye, and ear-coverts dark brown, the latter slightly shaded with an olive tinge; nape and hind neck dull red; cheeks ashy brown, with a bluish shade under certain lights, forming a very broad moustache; throat reddish in the center, brown on the sides, forming a malar stripe; the fore neck red with a tinge of lilac; chest lilac-gray, the sides olive-brown; remainder of under surface of body scarlet; the sides olive-brown, with which color the center of the abdomen is washed; under tail-coverts scarlet, the longer ones tipped and edged with lilac-blue; thighs ashy gray; under wing-coverts dull lilac-blue, some of the outer ones tipped with white; axillars olive-brown, like the back; quills ashy brown below, relieved by the before-mentioned white spots on the primaries. Length, 190, culmen, 30; wing, 119; tail, 56; tarsus, 53.'

"The large size and dark brown ear-coverts are the distinguishing features of this pitta." (*Sclater.*)

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* See also the remarks on *Pitta propinqua* under the next preceding species.

"*Immature female.*—Top of the head rather dark brown, shading gradually into a more rufous tint on the nape; all the feathers have rather darker margins, giving these parts a slightly scaled appearance; a few of the dull red feathers of the adult are beginning to make their appearance; the dark olive on the rest of the upper parts has a somewhat browner shade, though here and there some of the greener feathers of the adult plumage may be seen; the grayish blue of the outer wing-coverts and outer webs of the secondaries is replaced by dull olive, and the slate-blue of the upper tail-coverts and tail is not so bright; the ear-coverts are brown, with buff centers; the moustache stripes dirty white, devoid of that reddish shade characteristic of the adult plumage: the chin and throat-feathers with white centers and black margins and bases, those on the fore neck being conspicuously white, washed with reddish; the chest-feathers are whitish buff, with here and there a few slate-blue feathers; rest of the under parts dirty whitish buff, most of the feathers, especially those on the sides and flanks, margined with brownish buff; a few pale scarlet feathers indicate the colors of the adult, but are much less brilliant.

"In more advanced examples the upper parts entirely resemble those of the fully adult bird, but the slate-blue on the wings is almost wanting; the fore neck and chest are still intermixed with white-and-buff centered feathers, and on the rest of the under parts the scarlet feathers of the adult and the whitish buff of the juvenile plumage are represented in about equal parts.

"It is difficult to imagine anything more glorious than the colors of the fully adult male, the brilliant scarlet of the lower breast and belly contrasting vividly with the shining slate-blue chest.

"The *adult female* differs from the male only in having the colors of the under parts rather less brilliant." (*Grant.*)

Koch's pitta is known only from the highlands of northern Luzon.

382. PITTA ATRICAPILLA Lesson.

BLACK-HEADED PITTA.

Pitta atricapilla LESSON, Trait d'Orn. (1831), 394; SCLATER, Cat. Birds Brit. Mus. (1888), 14, 438; GRANT and WHITEHEAD, Ibis (1898), 245 (eggs); WHITEHEAD, Ibis (1899), 245; SHARPE, Hand-List (1901), 3, 182; OATES and REID, Cat. Birds' Eggs (1903), 3, 227; MCGREGOR and WORCESTER, Hand-List (1906), 68.

Wow-há, Siquijor and Bohol.

Balabac (*Everett*); Bantayan (*McGregor*); Basilan (*Steere, Steere Exp., Bourns & Worcester, McGregor*); Bohol (*McGregor*); Bongao (*Everett*); Calamianes (*Bourns & Worcester*); Cebu (*Bourns & Worcester, McGregor*); Luzon (*Meyer, Möllendorff, Steere Exp., Bourns & Worcester, Whitehead, McGregor*); Marinduque?* (*Steere Exp.*); Mindanao (*Everett, Steere Exp., Bourns & Wor-*

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* Cf. *Pitta rothschildi*, page 420.

cester); Mindoro (*Bourns & Worcester*); Negros (*Meyer*); Palawan (*Steere, Lempriere, Whitehead, Platen, Steere Exp., Bourns & Worcester, White*); Romblon (*McGregor*); Samar (*Whitehead*); Semirara (*Worcester*); Sibuyan (*McGregor*); Siquijor (*Steere Exp., Bourns & Worcester, Celestino*); Sulu (*Platen*); Tablas (*Bourns & Worcester*); Tawi Tawi (*Bourns & Worcester*).

Adult (*sexes similar*).—Entire head, neck, chin, and throat velvety black; back and greater part of the wings green, changing with the light; rump and tail-coverts shining silvery blue; tail black, tipped with green; breast and sides bluish green; a large black patch on middle of abdomen; lower abdomen and under tail-coverts bright red; primaries white with black bases, the four or five outer ones with narrow black tips; secondaries black, tipped with green on upper surface; primary-coverts and alula velvety black; lesser and median coverts shining silvery blue. Iris brown; bill black; legs and nails dirty brown. Length, about 180. A male from Romblon, wing, 110; tail, 35; culmen from base, 25; tarsus, 40. A female from Tablas, wing, 102; tail, 34; culmen from base, 26; tarsus, 37.

The amount of white on the outer primaries varies to a great extent; in females it is usually much less than in males.

"The black-headed pitta is called 'wow-ha' by the natives from its note. Iris dark brown; legs, feet, and nails very dark brown; bill black. Twelve males average: Length, 169; wing, 103; tail, 39; culmen, 25; tarsus, 36; middle toe with claw, 32. Three females, length, 167; wing, 100; tail, 37; culmen, 25; tarsus, 36; middle toe with claw, 32." (*Bourns and Worcester MS.*)

Whitehead secured a nest of the black-headed pitta near Paranas, Samar, on June 30, 1896. The egg is thus described:

"Shape rounded ovate. Ground-color pure white, thickly speckled all over with brown and larger underlying spots of french-gray, the latter being most numerous round the larger pole. Measurements 26 mm. by 21 mm.

"The nest with two slightly incubated eggs (one of which was broken) were brought by a native, together with the parent birds. The somewhat bulky nest was composed outwardly of twigs and lined with moss." (*Grant and Whitehead.*)

383. PITTA MULLERI (Bonaparte).

GREATER BLACK-HEADED PITTA.

Brachyurus mulleri BONAPARTE, Consp. Genera Avium (1850), 1, 256.

Pitta muelleri SCLATER, Cat. Birds Brit. Mus. (1888), 14, 439.

Pitta müller SHARPE, Hand-List (1901), 3, 183; OATES and REID, Cat. Birds' Eggs (1903), 3, 228, pl. 6, fig. 18 (egg); MCGREGOR and WORCESTER, Hand-List (1906), 68.

Sibutu (*Everett*). Borneo, Sumatra, Banka.

"Similar to *P. atricapilla*, but of rather larger dimensions." (*Sclater.*)

Writing of *Pitta atricapilla* and *P. mulleri* Sharpe[*] says: "These two birds are closely related; but the Bornean species [*mulleri*] almost entirely wants the black patch on the belly, and has the thighs blackish instead of ochraceous brown."

384. **PITTA ROTHSCHILDI** (Parrot).

ROTHSCHILD'S PITTA.

Pitta atricapilla rothschildi Parrot, Abhandl. K. Bayer Akad. Wiss. (1907), 24, 223.

Marinduque (*Steere Exp.*).

Male.—Related to *Pitta atricapilla* from which it is said to differ in having the under parts suffused with blue so that there is hardly a trace of green remaining; white of the wing-quills much reduced; chest-spot relatively small; and the color of the vent-feathers bright carmine-red not cinnabar-red.[†]

385. **PITTA STEERI** (Sharpe).

STEERE'S PITTA.

Brachyurus steerii Sharpe, Nature (1876), 14, 297; Trans. Linn. Soc. 2d. ser. Zool. (1877), 1, 329, pl. 49.
Pitta steerii Sclater, Cat. Birds Brit. Mus. (1888), 14, 442; Grant, Ibis (1897), 241; Whitehead, Ibis (1899), 246 (habits).
Pitta steerei Sharpe, Hand-List (1901), 3, 184.
Pitta steeri McGregor and Worcester, Hand-List (1906), 68.

Bohol (*McGregor*); Mindanao (*Steere, Everett, Steere Exp.*); Samar (*Steere Exp., Whitehead*).

Adult (*sexes similar*).—Entire head and neck and their sides black; upper parts green; rump light blue; tail and its coverts black; chin and throat white; rest of under parts light blue, except a band of velvety black down middle of breast, and the bright scarlet of crissum; thighs gray; primaries black, some of them with small white spots near the middle; secondaries green; alula and primary-coverts black; secondary-coverts shiny silvery blue. Iris brown; bill black; legs gray. Length, about 190. A male from Bohol measures: Wing, 115; tail, 38; culmen from base, 26; tarsus, 42. A female measures, wing, 115; tail, 38; culmen from base, 27; tarsus, 40.

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[*] *Trans. Linn. Soc. 2d. ser. Zool.* (1877), 1, 331.

[†] The validity of this species appears to me very doubtful; the original description follows:

"Völlig abweichend aber präsentiert sich ein anscheinend männliches stück aus Marinduque (Philippinen), dessen Unterseite derartig stark mit Blau übertönt erscheint, dass von der grünen Farbe kaum noch eine Spur sichtbar bleibt. Das Weiss der Flügels in den Schwingen erscheint bei diesem interessanten Vogel, der zudem stärker ist wie die beiden anderen Philippiner, in ganz exzessivem Masse entwickelt; der Brustfleck dagegen ist relativ klein. Das Kolorit des Steissgefieders ist in prächtiges Karsisinrot (nicht Zinnoberrot)." (*Parrot.*)

Sclater says: "It is impossible to mistake this noble species, distinguished at once by its pure white throat and silvery blue under surface."

"The plumage of some of the young birds, being in an interesting stage of transition, is worth describing. The youngest example, a male, has the upper parts and wings like those of the adult, but the breast, sides, and flanks are of a dirty, grayish olive, only one or two of the silver-blue feathers being visible, and the entire middle of the breast and belly are pale scarlet. A rather older bird is similar to the above, but down the sides and middle of the breast are three lines of pale blue feathers. In both specimens these are being attained by molt. In the middle of the breast a tuft of the black adult feathers is making its appearance amongst the red, and some of the latter appear to be turning black without a molt. * * *." (*Grant.*)

Steere's pitta is by no means common in any of the islands where it has been found. In Bohol it was collected in forests of small trees growing on coral-limestone hills and Whitehead found the species on similar ground in Samar.

386. PITTA MOLUCCENSIS (P. L. S. Müller).

BLUE-WINGED PITTA.

Turdus moluccensis P. L. S. MÜLLER, Natursyst. Suppl. (1776), 144.

Pitta cyanoptera TEMMINCK, Pl. Col. (1823), 218; SCLATER, Cat. Birds Brit. Mus. (1888), 14, 420; HUME, Oates ed. Nests & Eggs Ind. Bds. (1890), 2, 283; SHARPE, Hand-List (1901), 3, 180.

Pitta fastosa MCGREGOR, Phil. Jour. Sci. (1907), 2, sec. A, 286.

Basilan (*Celestino*). Burma, Siam, Cambodia, southern China, Malay Peninsula, Borneo.

Adult (*sexes alike*).—Sides of head including lores, cheeks, supercilia, and ear-coverts black, connected by a wide black collar; wide vertical stripe black, bordered on each side by a wide stripe of fulvous brown, the feathers edged with pale buff on exterior webs; back, scapulars, and tertials dark green; rump, upper tail-coverts, and lesser and median wing-coverts bright ultramarine-blue; chin black; throat white; lower throat, breast, abdomen, and flanks ruddy buff, most intense on breast; vent, under tail-coverts, and middle of abdomen bright red; tail black, tipped with dull blue; primaries black, each father with a white patch, mesial and smallest on first, reaching tip on seventh; secondaries black, edged with dull blue on terminal half: alula, primary-coverts, axillars, and wing-lining black. A male measures: Wing, 119; tail, 38; culmen from base, 26; bill from nostril, 17; tarsus, 39. A female from Basilan (type of *Pitta fastosa*) measures: Length in flesh, 190; wing, 117; tail, 40; culmen from base, 28; bill from nostril, 18; tarsus, 36.

The type of *Pitta fastosa* McGregor proves to be a specimen of *P. moluccensis.* This species is migratory.

Suborder ACROMYODI.

Characters the same as those given in the key to Suborders.

Families.

- a^1. Width of gape about twice the length of bill from nostril; bill short and weak; secondaries about one-half as long as wing; legs and feet weak. **Hirundinidæ** (p. 424)
- a^2. Width of gape usually much less than, or at most about equal to, bill from nostril; secondaries more than one-half as long as wing.
  - b^1. Tarsus booted, its anterior face consisting of a single plate, occasionally with obsolete transverse divisions; or, sometimes with one or two transverse lines near the foot.
    - c^1. Tarsus not longer than bill from gape, usually much less.
      - d^1. First primary more than one-half the length of the second. **Pycnonotidæ** (p. 496)
      - d^2. First primary much less than one-half the length of the second. **Certhiidæ** (p. 611)
    - c^2. Tarsus decidedly longer than bill from gape.
      - d^1. Tertials decidedly shorter than the secondaries.
        - e^1. Usually much larger; tail square, or nearly so; rictal bristles longer and more numerous; plumage of young mottled or squamate. **Turdidæ** (p. 541)
        - e^2. Usually much smaller; tail rounded, wedge-shaped, or strongly graduated; wing never over 100 mm., usually much less; plumage of young nearly like that of adult, but usually brighter. **Sylviidæ** (p. 566)
      - d^2. Tertials longer than the secondaries; hind claw usually longer than the hind toe .... **Motacillidæ** (p. 664)
  - b^2. Tarsus distinctly scutellate, in front at least.
    - c^1. Posterior face of tarsus rounded and scutellate.......... **Alaudidæ** (p. 673)
    - c^2. Posterior face of tarsus compressed and acute, without transverse divisions.
      - d^1. Cutting edges of bill minutely serrated.
        - e^1. Bill from nostril more than tarsus; bill slender and strongly curved. **Nectarinidæ** (p. 641)
        - e^2. Bill from nostril less than tarsus; bill stouter and but little curved. **Dicæidæ** (p. 622)
      - d^2. Cutting edges of bill not serrated.
        - e^1. First primary wanting; the outermost (second) primary nearly as long as the next (third) one.
          - f^1. Bill slender, curved, and acute; a circle of white feathers around the eye (usually).......... **Zosteropidæ** (p. 613)
          - f^2. Bill stout, conical, and relatively shorter; no circle of white feathers around the eye.......... **Fringillidæ** (p. 676)
        - e^2. First primary present, sometimes very minute.
          - f^1. First primary slender, acute, and shorter than primary-coverts.
            - g^1. Powder-down patches present on the sides, thighs, and back. **Artamidæ** (p. 589)
            - g^2. Powder-down patches wanting.
              - h^1. Bill short and stout; tips of rectrices pointed. **Ploceidæ** (p. 687)

- *h*². Bill moderately long and slender; tips of rectrices square or rounded .... **Sturnidæ** (p. 709)

*f*². First primary longer than primary-coverts, its tip rounded.

- *g*¹. Nostrils not concealed by plumes nor bristles; rictal bristles not conspicuously developed.
  - *h*¹. Wing rounded, the primaries not greatly exceeding the secondaries in length .... **Timeliidæ** (p. 517)
  - *h*². Wing pointed, the primaries considerably longer than the secondaries .... **Oriolidæ** (p. 693)
- *g*². Nostrils concealed by antrorse feathers, or by both feathers and long bristles.
  - *h*¹. Smaller; wing, less than 200 mm.; frontal feathers shorter, never extending far in front of the nostrils; nasal bristles often extending beyond the frontal feathers.
    - *i*¹. Under tail-coverts shorter, not extending beyond the toes in skins.
      - *j*¹. Hind toe longer than longest lateral toe, its claw large; outer toe much longer than inner toe; bill slender; culmen nearly straight .... **Sittidæ** (p. 609)
      - *j*². Hind toe equal to, or shorter than, longest lateral toe, its claw not conspicuously larger than the claws of anterior toes; outer toe slightly longer than inner toe; culmen more or less curved, usually with a notch near the tip of mandible; or else the bill short, stout, and conoid.
        - *k*¹. Bill much flattened, wide at the base, and with long rictal and nasal bristles; or else bill slender; legs and feet usually weak; wing, not over 95 mm., usually much less .... **Muscicapidæ** (p. 430)
        - *k*². Bill strong and compressed, or else short and conoid with no notch near the tip; legs and feet stout.
          - *l*¹. Tail short and square, reaching little if at all beyond the toes; bill short, stout, and conoid; wing, 80 mm. or less .... **Paridæ** (p. 604)
          - *l*². Tail moderately to very long; bill large and compressed, culmen strongly curved; wing, 85 mm. or more.
            - *m*¹. Rectrices long, narrow, and graduated; plumage never glossy nor entirely black; upper mandible with a strong notch near the tip. **Laniidæ** (p. 591)
            - *m*². Rectrices long and broad, the outermost curved outward; tail slightly to deeply forked; feathers on sides of neck more or less lengthened and pointed; plumage glossy black (abdomen white in one species) .... **Dicruridæ** (p. 702)
    - *i*². Under tail-coverts longer, extending beyond the toes in skins; bill stout, as wide as deep at nostril; culmen strongly arched; rictal and nasal bristles inconspicuous. **Campophagidæ** (p. 478)
  - *h*². Larger; wing, more than 200 mm.; plumes covering the nostrils numerous and long, extending well beyond the nostrils; no nasal bristles; plumage entirely black .... **Corvidæ** (p. 721)

Family **HIRUNDINIDÆ**.

Bill weak, short, flat, and broad, the edges smooth; a small notch near end of upper mandible; culmen nearly straight, except at tip; nostrils exposed; rictal bristles small and weak; wings long and narrow; primaries nine, the first slightly longer than the second; secondaries very short; tail more or less forked; tarsus and toes slender, moderate in size, usually unfeathered.

Genera.

a^1. Toes and tarsus thickly covered with short feathers........ **Chelidonaria** (p. 424)
a^2. Toes, and usually the tarsus, entirely devoid of feathers.
  b^1. Upper parts dull earthy brown with no gloss; tail but slightly forked. **Riparia** (p. 425)
  b^2. Upper parts glossed with green or steel-blue; tail deeply forked, and sometimes very long .... **Hirundo** (p. 426)

Genus CHELIDONARIA Reichenow, 1889.

Plumage of upper parts black, glossed with blue, bases of the feathers white; a white band across rump; tail nearly square; tarsi and toes thickly clothed with short feathers.

387. **CHELIDONARIA DASYPUS** (Bonaparte).

SIBERIAN SWALLOW.*

Chelidon dasypus BONAPARTE, Consp. Gen. Avium (1850), 1, 343; SHARPE, Cat. Birds Brit. Mus. (1885), 10, 91.

Chelidonaria dasypus SHARPE, Hand-List (1901), 3, 188; OATES and REID, Cat. Birds' Eggs (1903), 3, 230; McGREGOR, Bull. Philippine Mus. (1904), 4, 33; McGREGOR and WORCESTER, Hand-List (1906), 69.

Calayan (*McGregor*). Japan; Borneo in winter.

"*Adult male* (*type of species*).—General color above dull purplish blue, with white bases to the feathers; wing-coverts and quills blackish with a slight blue gloss; rump and upper tail-coverts pure white, with narrow dusky shaft-lines; the long upper tail-coverts and tail-feathers blackish with a faint blue gloss; tail very slightly forked; head like the back; lores and feathers below the eye black; ear-coverts dull purplish blue, as also the sides of neck and sides of upper breast, the latter slightly mottled with white bases; fore part of cheeks and under surface of body creamy buff, washed with smoky brown on the breast and flanks, with a little purer white on the fore neck and abdomen; under tail-coverts smoky brown, broadly edged with whitish, the long coverts blacker with broad whitish edging; axillars and under wing-coverts dark brown, the small coverts near edge of wing edged with pale smoky brown; quills dull ashy brown below. Length, 117; wing, 104; tail, 26; culmen, 7; tarsus, 12." (*Sharpe.*)

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* Some species of the swallow family are known to European authors as sand martins, while other species are called house martins, but as, in the United States, the name martin is closely associated with the genus *Progne*, I prefer to retain the name swallow for all the species of *Hirundinidæ* known from the Philippine Islands.

Female.—Above blackish brown, slightly glossed with steel-blue, and the feathers with white bases which show through on the neck and back; a white band across rump, some of its feathers with smoky brown shafts and tips; wings and tail blackish brown; lores, subocular line, and ear-coverts smoky brown; under parts white; chin and breast washed with light smoky brown; under tail-coverts smoky brown with darker shafts and white tips. Length, 117; wing, 104; tail, 46; culmen from base, 7; tarsus, 7.

Very little is known concerning the occurrence of the Siberian swallow in the Philippines where it has been found only during migration.

Genus RIPARIA Forster, 1817.

Plumage dull in color, above brownish black or earthy brown; no band across rump and no light spots on the tail which is but slightly forked; tarsi and toes nearly or quite naked.

Species.

a^1. Larger; wing, 95 mm. or more; a small tuft of feathers on back of tarsus at base of hind toe; a dark band across breast .... **riparia** (p. 425)
a^2. Smaller; wing, 90 mm. or less; no tuft of feathers on tarsus; no dark band across breast .... **chinensis** (p. 426)

388. **RIPARIA RIPARIA** (Linnæus).

BANK SWALLOW.

Hirundo riparia LINNÆUS, Syst. Nat. (1758), 1, 192.
Cotile riparia SHARPE, Cat. Birds Brit. Mus. (1885), 10, 96; OATES, Fauna Brit. Ind. Bds. (1890), 2, 272, fig. 76 (foot).
Clivicola riparia SHARPE, Hand-List (1901), 3, 189; OATES and REID, Cat. Birds' Eggs (1903), 3, 231; MCGREGOR, Bull. Philippine Mus. (1904), 4, 33; MCGREGOR and WORCESTER, Hand-List (1906), 69.

Calayan (*McGregor*). Northern America and Asia; Europe, China; in winter to Central and South America, Africa, Indian Peninsula, and Indo-Burmese countries.

Adult.—Lores and crown blackish brown; remainder of upper parts grayish brown, each feather with a light gray fringe; primaries and coverts blackish brown; tail dark brown, its feathers edged with white; under parts white with a distinct dark brown band across the breast. Length, about 115; wing, 96; tail, 45; depth of fork, 7; bill from nostril, 5; tarsus, 9.

"Young birds have all the feathers of the upper plumage and the wings margined with rufous, the chin and throat fulvous, and the breast broadly brown." (*Oates.*)

The bank swallow has a very wide range, but occurs in the Philippines as a rare migrant only.

389. RIPARIA CHINENSIS (Gray).

CHINESE BANK SWALLOW.

Hirundo chinensis Gray, in Hardwick's Illustr. Ind. Zool. (1830), **1**, pl. 35, fig. 3.
Cotile sinensis Sharpe, Cat. Birds Brit. Mus. (1885), **10**, 104; Whitehead, Ibis (1899), 236 (nesting).
Clivicola sinensis Sharpe, Hand-List (1901), **3**, 190; Oates and Reid, Cat. Birds' Eggs (1903), **3**, 232; McGregor and Worcester, Hand-List (1901), 190.

Luzon (*Whitehead, Mearns, Curran*). Formosa and southern China; in winter to Indian Peninsula and Indo-Chinese countries.

Adult.—Above light earthy brown, lighter on the rump; wings and tail darker brown; chin, throat, breast, sides of head and of neck pale gray; abdomen, vent, sides, and under tail-coverts white. Length, about 100; wing, 89; tail, 40; depth of fork, 5; bill from nostril, 4; tarsus, 9.

Young.—"The young bird has all the feathers of the upper plumage and wings broadly margined with rufous, and the chin, throat, and breast are pale rufous." (*Oates.*)

The Chinese bank swallow is considerably smaller and has a less deeply forked tail than the preceding species. Whitehead found it fairly common in northern Luzon and observed numbers entering their nesting-holes in the high banks of the Abra River in February.

Genus HIRUNDO Linnæus, 1758.

Plumage blackish above, glossed with blue or green, and the feathers with white bases; no white band on rump; tail deeply forked, in some species the outermost feathers attenuated and extending beyond the closed wings.

Species.

a^1. Under parts not streaked with blackish lines; rump uniform with the back.
  b^1. Chin and throat chestnut, but the fore breast crossed by a more or less complete band of glossy black.
    c^1. Dark pectoral band complete .... **rustica** (p. 426)
    c^2. Dark pectoral band more or less interrupted in the middle. **gutturalis** (p. 427)
  b^2. Chin, throat, and fore breast entirely chestnut with no blackish color on breast .... **javanica** (p. 428)
a^2. Under parts conspicuously streaked with blackish; rump chestnut. **striolata** (p. 429)

390. HIRUNDO RUSTICA Linnæus.

COMMON SWALLOW.

Hirundo rustica Linnæus, Syst. Nat. ed. 10 (1758), **1**, 191; Sharpe, Cat. Birds Brit. Mus. (1885), **10**, 128; Hand-List (1901), **3**, 192; Oates, Fauna Brit. Ind. Bds. (1890), **2**, 277; Oates and Reid, Cat. Birds' Eggs (1903), **3**, 237; McGregor and Worcester, Hand-List (1906), 69.

Mindanao (*Mearns*); Palawan (*Whitehead*). Europe, northern Asia, Indian Peninsula, Manchuria, China, and Indo-Chinese provinces; in winter to Africa and Malay Peninsula.

"*Coloration.*—Forehead, chin, and throat chestnut; lores black; upper plumage and wing-coverts glossy purplish blue; quills and tail black, suffused with glossy green; all the tail-feathers, except the middle pair, with a white patch on the inner web; sides of head and neck and a very broad pectoral band glossy black, a few of the feathers of the latter part narrowly fringed with chestnut; lower plumage from the pectoral band downward pale rufous, becoming rather darker on the under tail-coverts. Length, up to 203; tail, up to 114; wing, 127; tarsus, 13; bill from gape, 15; bifurcation of tail, about 68.

"The *young bird* does not differ very much from the adult, but has the color of its plumage very dull." (*Oates.*)

391. HIRUNDO GUTTURALIS Scopoli.

EASTERN SWALLOW.

Hirundo gutturalis SCOPOLI, Del. Flor. et Faun. Insubr. (1786), 2, 96; SHARPE, Cat. Birds Brit. Mus. (1885), **10**, 134; Hand-List (1901), **3**, 193; WHITEHEAD, Ibis (1899), 236; OATES and REID, Cat. Birds' Eggs (1903), **3**, 238; MCGREGOR and WORCESTER, Hand-List (1906), 70.

Basilan (*Bourns & Worcester*); Bohol (*McGregor*); Cagayan Sulu (*McGregor*); Calayan (*McGregor*); Cebu (*McGregor*); Cuyo (*McGregor*); Fuga (*McGregor*); Guimaras (*Steere Exp., Bourns & Worcester*); Luzon (*Everett, Steere Exp., Bourns & Worcester, McGregor*); Maestre de Campo (*McGregor & Worcester*); Mindanao (*Steere Exp., Bourns & Worcester*); Mindoro (*Bourns & Worcester*); Palawan (*Bourns & Worcester*); Panay (*Steere Exp., Bourns & Worcester*); Semirara (*Worcester*); Sibay (*McGregor & Worcester*); Siquijor (*Bourns & Worcester*); Sulu (*Bourns & Worcester*); Ticao (*McGregor*). Malay Peninsula and Archipelago, Indo-Chinese provinces; central and eastern Siberia, China, Japan, New Guinea, Australia.

Adult (*sexes similar*).—Forehead, chin, and throat dark chestnut, lores black; upper parts dark steel-blue; feathers of hind neck and upper back with much white basally; sides of head and neck, and a broad, more or less interrupted, band on breast steel-blue; rest of under parts white, sometimes tinged with pale salmon-pink; wings and tail black, glossed with green; each of the rectrices except middle pair with a large white spot on inner web. Length, about 175; wing, 118; tail, 90; depth of fork, 47; bill from nostril, 6; tarsus, 10.

Young birds have the forehead, chin, and throat brown or whitish, and the breast-band and sides of head earthy brown.

Typical specimens of the common and eastern swallows are no doubt very distinct, but the two forms appear to intergrade so that some authors have rejected the latter species, although it seems now to be generally recognized. Sharpe says in part: "If one accepts the broken pectoral collar as the best sign of distinction between *H. gutturalis* and

H. rustica, it will be found to be so only in the majority of specimens, and by no means invariably; in fact there is as much variation with *H. gutturalis* in the direction of a complete collar on the fore neck as there is in *H. rustica* in that of a broken collar. Again, although the majority of *H. gutturalis* have a white under surface, still this is not an unfailing character of the eastern race; for many undoubted examples are rufescent below, although there is never such a decided tint of rufous as in full-plumaged *H. rustica.*"

392. **HIRUNDO JAVANICA** Sparrman.

ASIATIC SWALLOW.

Hirundo javanica SPARRMAN, Mus. Carls. (1789), 2, pl. 100; SHARPE, Cat. Birds Brit. Mus. (1885), **10**, 142; Hand-List (1901), **3**, 194; WHITEHEAD, Ibis (1899), 236 (nesting habits); OATES and REID, Cat. Birds' Eggs (1903), **3**, 239; MCGREGOR and WORCESTER, Hand-List (1906), 70.

Lai-ang' lai-ang', Manila.

Babuyan Claro (*McGregor*); Bantayan (*McGregor*); Basilan (*Steere Exp., Bourns & Worcester, McGregor*); Batan (*McGregor*); Bohol (*Everett, McGregor*); Cagayan Sulu (*Guillemard, McGregor*); Calamianes (*Bourns & Worcester, McGregor*); Camiguin N. (*McGregor*); Catanduanes (*Whitehead*); Cebu (*Everett, McGregor*); Cuyo (*McGregor*); Dinagat (*Everett*); Guimaras (*Bourns & Worcester*); Leyte (*Everett*); Lubang (*McGregor*); Luzon (*Whitehead, Bourns & Worcester*); Marinduque (*Steere Exp.*); Masbate (*Bourns & Worcester*); Mindanao (*Platen, Bourns & Worcester*); Mindoro (*Steere Exp., Schmacker, McGregor*); Negros (*Steere Exp., Bourns & Worcester*); Palawan (*Lempriere, Platen, Whitehead, Steere Exp., Bourns & Worcester, White*); Panay (*Bourns & Worcester*); Romblon (*McGregor*); Samar (*Steere Exp.*); Sibutu (*Everett*); Sibuyan (*McGregor*); Siquijor (*Bourns & Worcester, Celestino*); Sulu (*Guillemard, Bourns & Worcester*); Tawi Tawi (*Bourns & Worcester*); Ticao (*McGregor*). Southern India, Malay Peninsula, Molucca Islands, islands of Torres Straits, New Guinea, Java, Sumatra, Borneo, Ceylon.

Adult (*sexes similar*).—Lores black; entire forehead, chin, throat, and fore breast chestnut-rufous; upper parts including wings and tail glossy steel-blue, feathers of neck and back with white bases; breast, abdomen, under tail-coverts, sides, and axillars ashy brown, whitish on abdomen; longest tail-coverts with white tips and black subterminal bars; rectrices, except middle pair, with white spots on inner webs. Length, about 140. Male, wing, 109; tail, 53; depth of fork, 12; bill from nostril, 7; tarsus, 9. Female, wing, 107; tail, 51; depth of fork, 7; bill from nostril, 7.

Young birds have the chin, throat, and breast much lighter, upper parts with less gloss, and the forehead black like the crown with no green gloss.

The Asiatic swallow is abundant and widely distributed. It makes a crescent-shaped nest of mud which it fastens to a rock-cliff or to a beam under a building. Three heavily incubated eggs were collected in Bohol in July. They are white, dotted with reddish and blackish brown, and with a few under shell-markings of lavender; they measure 17.7 by 12.4

393. HIRUNDO STRIOLATA (Boie).

MOSQUE SWALLOW.

Cecropis striolata BOIE, Isis (1844), 174.

Hirundo striolata SHARPE, Cat. Birds Brit. Mus. (1885), **10**, 161; Hand-List (1901), **3**, 196; WHITEHEAD, Ibis (1899), 236 (migration in northern Luzon); MCGREGOR and WORCESTER, Hand-List (1906), 70; MCGREGOR, Phil. Journ. Sci. (1907), **2**, sec. A, 326 (nesting habits).

Batan (*McGregor*); Bohol (*McGregor*); Calayan (*McGregor*); Camiguin N. (*McGregor*); Cebu (*McGregor*); Luzon (*Whitehead*); Masbate (*Bourns & Worcester*); Mindoro (*Porter*). Formosa, southern China, Burmese provinces, Java, Assam, Flores, Cachar.

Adult (*sexes similar*).—Above, except rump, dark steel-blue; loral feathers black with gray bases; a more or less triangular patch above and behind ear-coverts chestnut, streaked with black, continued forward over eye and slightly connected across occiput by fine lines of chestnut; feathers of neck and upper back largely white basally, this showing as white lines; under tail-coverts black; remainder of under parts including axillars and wing-lining white, or very pale fawn, with conspicuous blackish shaft-lines producing a very striking appearance; rump rusty chestnut with blackish shaft-lines; tail-coverts, secondaries, and secondary-coverts black, slightly glossed with blue; alula, primary-coverts, primaries, and rectrices black, slightly glossed with dark green. Bill black; legs and nails brown. Length, 190 to 195. A male from Cebu measures: Wing, 123; tail, 102; depth of fork, 55; bill from nostril, 6; tarsus, 14. A female from Cebu, wing, 120; tail, 93; depth of fork, 46; bill from nostril, 6; tarsus, 14.

Young.—General color pattern as in the adult, but head and back less strongly glossed with blue; chestnut on head and rump much lighter; wings and tail dark brown instead of black, and inner secondaries tipped with white; lower parts heavily washed with fawn, and shaft-stripes shorter, browner, and less sharply defined, very faint or altogether wanting on abdomen and under tail-coverts; axillars, wing-lining, and flanks strongly washed with fawn, shaft-lines faint or wanting.

If the Philippine representatives of the mosque swallow be included with *H. striolata,* as they must be at present, this species has a considerable range but it appears to be very local in occurrence. It may be found in numbers in one part of an island and be altogether absent a short distance away. It often appears in large flocks and may disappear within a few hours. I found it nesting in Bohol Island in May and in the Island of Batan during June. The nest is a bottle-shaped structure of mud, plastered to a wall in a cave or to a beam beneath a building. The eggs are pure white; three from Bohol measure: 22.6 by 14.7; 22.3 by 14.2; 22.8 by 14.7.

Family **MUSCICAPIDÆ.**

Edges of mandibles smooth with a small notch near the tip of the upper one; bill moderately broad and flat; nostrils protected by a number of long frontal bristles; frontal feathers more or less antrorse (soft and pile-like in some genera), but not entirely concealing the nostrils; rictal bristles long, numerous, and stiff; wings and tail long, the latter extremely long in some species; first primary, rarely minute, usually from one-half to two-thirds as long as wing; tarsus and feet slender and weak, the former rather short. This family contains a great number of closely related genera the species of which, in many cases, are not easily determined except from adult males.

Typically the bill is broad and flat, but in certain genera it is narrow and scarcely differs from the bill of some Turdine and Silvine birds. The frontal nasal bristles, long rictal bristles, and the weak legs and feet, are the most reliable family characters of this group. In the typical flycatchers the skin is very thin and tender which, taken in combination with their small necks and large heads, makes their preparation as specimens very trying.

Some of the most beautiful birds found in the Philippine Islands belong to this family, but several of the species are plainly colored. The males in a few genera possess greatly lengthened tail-feathers; in some others the head is crested.

Genera.

a^1. First primary very small and less than tarsus, equal to about one-fifth of second primary, the latter nearly as long as the third. **Hemichelidon** (p. 431)

a^2. First primary longer and equal to, or greater than, tarsus; second primary less than three times the first.

b^1. Second primary longer, equal to nearly three times the first.

c^1. Sexes unlike in colors; bill neither very broad nor flat.

d^1. Tarsus about twice the bill from nostril; colors of male yellow, black, and white .... **Zanthopygia** (p. 449)

d^2. Tarsus decidedly less than twice the bill from nostril; colors of male blue, black, and white .... **Cyanoptila** (p. 450)

c^2. Sexes alike in colors; bill broad and flat .... **Alseonax** (p. 435)

b^2. Second primary less than two and one-half times, and usually less than twice, the first primary in length.

c^1. Tail decidedly shorter than wing; total length usually less than 150 mm.; wing less than 80.

d^1. Most of the plumage blue; usually with more or less black on forehead, lores, and chin.

e^1. General color azure-blue; head in adult conspicuously crested. **Camiguinia** (p. 453)

e^2. General color verditer-blue; head uncrested .... **Eumyias** (p. 477)

d^2. Most of the plumage not blue.
  e^1. General color bright yellow or olive-green, the under parts at least, yellow or greenish yellow.
    f^1. Bill greatly flattened, width at base nearly equal to bill from nostril; rictal bristles strong, much longer than bill from nostril; breast and abdomen bright yellow.................... **Culicicapa** (p. 472)
    f^2. Rictal bristles weak, shorter than bill from nostril; width of bill at base much less than bill from nostril.
      g^1. Under parts pale yellow; upper parts earthy brown. **Gerygone** (p. 447)
      g^2. Under parts greenish, or else white streaked with pale yellow; upper parts olive-green.............................. **Cryptolopha** (p. 473)
  e^2. General color neither yellow, olive-green, nor greenish yellow.
    f^1. Tail relatively longer, three to three and one-half times the tarsus.
      g^1. Throat and breast orange-buff or blue, never white. **Cyornis** (p. 436)
      g^2. Throat and breast white, never buff nor blue. **Rhinomyias** (p. 467)
    f^2. Tail relatively shorter, equal to about two and one-half times the tarsus .... **Muscicapula** (p. 441)
c^1. Tail equal to or longer than wing, sometimes very much longer.
  d^1. Without a distinct fleshy eye-wattle and without an elongated nuchal crest.
    e^1. Rictal bristles very strong and conspicuous, the longest equal to bill from base; plumage of crown not soft and velvety. **Rhipidura** (p. 456)
    e^2. Rictal bristles few, small and inconspicuous, the longest less than culmen from base; plumage of head soft and velvety; color mostly bright blue, never chestnut-brown...................... **Hypothymis** (p. 451)
  d^2. With a distinct fleshy eye-wattle; and with either a full or a long nuchal crest.
    e^1. Plumage mostly blue, or else reddish chestnut, never black.
      f^1. Much smaller; wing less than 80 mm.; feathers of crown scale-like; occipital crest-feathers long and slender; plumage bright blue. **Cyanomyias** (p. 455)
      f^2. Much larger; wing more than 90 mm.; feathers of crown not scale-like; occipital crest full but not greatly lengthened. **Xeocephus** (p. 461)
    e^2. Plumage of adult male black and white; central tail-feathers very long; in no age of either sex is the plumage either largely blue or chestnut; wing, about 90 mm............................ **Terpsiphone** (p. 465)

Genus HEMICHELIDON Hodgson 1845.

Bill very broad at base, slightly compressed toward the tip which is pointed; bill from nostril a little more than half the length of tarsus; wings long and pointed, when folded reaching at least half way to tip of tail; first primary short and small, not longer than tarsus; second primary slightly shorter than fourth, the latter nearly as long as third. Sexes similar; plumage mostly brown, gray, or ferruginous.

Species.

a^1. Tail uniform blackish brown; upper surface of body dusky or ashy brown; upper tail-coverts like back.
  b^1. Breast and sides of body smoky brown somewhat streaked with gray. **sibirica**[*] (p. 432)
  b^2. Breast and sides of body white, feathers with wide shaft-streaks of smoky brown or gray .... **griseosticta** (p. 433)
a^2. Tail ferruginous, its feathers with dark brown outer webs; back and rump ferruginous .... **ferruginea** (p. 434)

394. HEMICHELIDON SIBIRICA (Gmelin).

SIBERIAN FLYCATCHER.

Muscicapa sibirica GMELIN, Syst. Nat. (1788), 1, pt. 2, 936.
Hemichelidon sibirica SHARPE, Cat. Birds Brit. Mus. (1879), 4, 120; Hand-List (1901), 3, 204; BLASIUS, Ornis (1888), 10 of reprint; OATES, Fauna Brit. Ind. Bds. (1890), 2, 5, fig. 3 (head); OATES and REID, Cat. Birds' Eggs (1903), 3, 250; MCGREGOR and WORCESTER, Hand-List (1906), 70.

Palawan (*Platen*). Eastern Siberia, Altai Mountains, Japan; China in winter.

"*Adult male.*—General color above brown; least wing-coverts uniform with the back, the greater series dark brown with lighter brown tips to the median series, the greater coverts tipped with whitish; primary-coverts and primaries dark brown, the secondaries edged with pale brown, whitish at the tips; tail dark brown; lores buffy white; in front of the eye a dusky spot; round the eye a ring of buffy white feathers; feathers below the eye and ear-coverts brown like the crown: cheeks white, mottled with brown bases to the feathers; throat white, widening out on the lower part and separated from the cheeks by a broad moustachial line of brown: breast and sides of body ashy brown the former slightly mottled with grizzly white edgings to the feathers; abdomen and under tail-coverts pure white; thighs brown; under wing-coverts light tawny, with dusky bases to the feathers, the quills ashy brown with an edging of light tawny to the inner webs. 'Upper mandible dusky black; lower mandible yellowish brown, tipped with dusky; legs and feet brownish black; iris dark brown.' (*Armstrong.*) Length, 124; culmen, 10; wing, 80; tail, 56; tarsus, 127.

"*Observation.*—The description is from a specimen collected by Dr. Radde in Eastern Siberia on the 18th of May, 1856, and therefore in full breeding plumage. Examples from other parts of China and the Himalayas are similar, but great variation takes place in this species as regards the tone and intensity of the brown color both on the upper and under surface, and also in the uniform or mottled color on the breast. The coloration of the throat is very different in individuals, being in some almost uniform brown, succeeded by a jugular spot of white.

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[*] Sharpe, Hand-List (1901), 3, 204, recognizes *H. fuliginosa* as distinct from *H. sibirica* and gives Palawan as one of its localities. A flycatcher collected by Platen in Palawan is recorded by Blasius as *H. sibirica* and I have met with no reference to *H. fuliginosa* from that Island except as given by Sharpe.

"*Young* (Peking, Sept. 1868, R. Swinhoe).—Ashy brown, mottled with whitish streaks and terminal spots to the feathers, the greater coverts edged and tipped with buffy white, the rest of the coverts spotted with whitish at the tips like the back; primary-coverts and quills dark brown, the inner secondaries edged and tipped with pale rufous; under surface very thickly mottled with brown, the feathers being white with dusky brown edges." (*Sharpe.*)

The Siberian flycatcher must be considered a rare winter visitant to the Philippine Islands.

395. HEMICHELIDON GRISEOSTICTA Swinhoe.

GRAY-SPOTTED FLYCATCHER.

Hemichelidon griseosticta SWINHOE, Ibis (1861), 330.

Muscicapa griseisticta SHARPE, Cat. Birds Brit. Mus. (1879), 4, 153; WHITEHEAD, Ibis (1899), 104 (winter).

Hemichelidon griseisticta SHARPE, Hand-List (1901), 3, 204; MCGREGOR and WORCESTER, Hand-List (1906), 71.

Au-á, Cagayancillo.

Bohol (*McGregor*); Basilan (*McGregor*); Cagayancillo (*McGregor*); Cagayan Sulu (*McGregor*); Calamianes (*Bourns & Worcester, McGregor*); Calayan (*McGregor*); Caluya (*Porter*); Catanduanes (*Whitehead*); Cuyo (*McGregor*); Lubang (*McGregor*); Luzon (*Everett, Schmacker, Whitehead, McGregor*); Masbate (*Bourns & Worcester*); Mindoro (*Bourns & Worcester, McGregor*); Negros (*Everett, Steere Exp., Bourns & Worcester*); Palawan (*Whitehead, Platen, Bourns & Worcester, White*); Panay (*Steere*); Siquijor (*Bourns & Worcester, Celestino*); Tawi Tawi (*Bourns & Worcester*). Japan, China, Ussuri Land, New Guinea, Celebes, Moluccas.

Adult (*sexes similar*).—Above dusky brown; centers of feathers and head darker; wings and tail blackish brown; secondaries and wing-coverts fringed with white; below white; breast and sides of throat and of abdomen marked with wide, dusky brown shaft-streaks; middle of abdomen and under tail-coverts white; feathers of thighs brown, tipped with white. A male from Benguet measures: Length, 133; wing, 86; tail, 51; culmen from base, 12; bill from nostril, 8. A female from Culion measures: Length, 127; wing, 80; tail, 45; culmen from base, 11; bill from nostril, 7. The folded wing reaches nearly or quite to the end of the tail.

In the gray-spotted flycatcher there is some variation in the brown streaks of the under parts, but this species is not easily mistaken for any other bird except *Piprisoma æruginosum* which has a very differently shaped bill. The gray-spotted flycatcher is one of the commonest winter visitants and is found in small numbers throughout the islands.

"Fairly common; often seen perched on some isolated tree in the open, from which it flies now and then in pursuit of insects. Six males average: Length, 132; wing, 83.5; tail, 50; culmen, 13; tarsus, 14; middle toe with claw, 15. Four females, length, 128; wing, 81; tail, 49; culmen, 13; tarsus, 14; middle toe with claw, 15. Iris, legs, feet, and nails almost black; bill black, except base of lower mandible, which is yellowish or gray." (*Bourns and Worcester MS.*)

396. HEMICHELIDON FERRUGINEA Hodgson.

FERRUGINOUS FLYCATCHER.

Hemichelidon ferruginea HODGSON, Proc. Zool. Soc. (1845), 32; HUME, Oates ed., Nests & Eggs Ind. Bds. (1890), 2, 2; SHARPE, Hand-List (1901), 3, 204; MCGREGOR and WORCESTER, Hand-List (1906), 71.
Hemichelidon ferrugineus SHARPE, Cat. Birds Brit. Mus. (1879), 4, 122.

Mindoro (*Mearns*); Palawan (*Everett*). Khasi Hills, southern China, northern Borneo, Burmese provinces, Eastern Himalayas, Assam, Sumatra.

"*Adult.*—General color above rufous-brown, shading into chestnut on the rump and upper tail-coverts; head and nape sooty brown; least wing-coverts like the back, the remainder of the coverts and the secondaries blackish brown, edged and tipped with chestnut-rufous, paler on the margins of the inner secondaries; primary-coverts and primaries nearly uniform blackish brown, the first primary broadly edged with rufous; two center tail-feathers dusky brown, the remainder rufous, dusky brown along the outer web, the inner web more or less dusky near the tip; round the eye a distinct ring of buffy white feathers; lores rufous; feathers in front of and below the eye and the ear-coverts dusky brown, mottled with whitish shaft-lines or spots; under surface of body orange-rufous, the throat and sides of the breast shaded with dusky brown; center of abdomen white; throat pale rufous-buff, with dusky margins to most of the feathers; the bases of the plumes of the lower throat white, forming a concealed white patch; under wing-coverts deep orange-rufous; quills dark brown below, edged with light rufous along the inner web. 'Bill black, with base of the lower mandible whitish; feet dull gray, with the soles yellow and the nails gray; iris brown.' (*David.*) Length, 114; culmen, 11; wing, 71; tail, 51; tarsus, 13.

"*Observation.*—In some specimens the throat is pure white, with a malar streak on each side of dusky black; the outer tail-feathers appear gradually to lose all the dusky markings on the outer web." (*Sharpe.*)

The ferruginous flycatcher is a rare winter visitant to the Philippine Islands. A specimen of doubtful sex taken in Mindoro by Doctor Mearns measures: Wing, 69; tail, 48; culmen from base, 10; tarsus, 12.5. The folded wings extend beyond the middle of the tail.

Genus ALSEONAX Cabanis, 1850.

The genus *Alseonax* is similar to *Culicicapa* and *Hemichelidon,* having a very broad bill, but the rictal bristles are fewer and shorter than in *Culicicapa;* the first primary is pointed and but little longer than the primary-coverts. The sexes are alike in colors, being earthy brown above and white below. The species are migratory.

397. ALSEONAX LATIROSTRIS (Raffles).

BROWN FLYCATCHER.

Muscicapa latirostris RAFFLES, Trans. Linn. Soc. (1822), 13, 312.
Alseonax latirostris SHARPE, Cat. Birds Brit. Mus. (1879), 4, 127; Hand-List (1901), 3, 206; OATES, Fauna Brit. Ind. Bds. (1890), 2, 35, fig. 14 (bill); OATES and REID, Cat. Birds' Eggs (1903), 3, 251; MCGREGOR and WORCESTER, Hand-List (1906), 71.
Butalis latirostris TWEEDDALE, Proc. Zool. Soc. (1878), 284.

Bongao (*); Negros (*Everett*); Sulu (*). Ceylon, Indian Peninsula, Burmese provinces, Greater Sunda Islands, Moluccas, eastern Siberia, Japan, China.

"*Coloration.*—Upper plumage ashy brown, the feathers of the crown with darker centers; tail dark brown, the outer feathers very narrowly tipped with whitish; wings and coverts dark brown, all but the primaries broadly edged with ashy white; lores and a ring of feathers round the eye white; sides of head brown; lower plumage white, tinged with ashy on the breast and sides of the body.

"The *young* have the crown blackish, streaked with fulvous; the upper plumage and wings with large terminal fulvous spots; the lower plumage like that of the adult but mottled with brown. After the autumn molt and till the following spring the young are very rufous.

"Bill black, the base of the lower mandible yellow; mouth orange; iris brown; legs and claws black. The young bird has the whole bill yellow except the tip, which is dusky. Length rather more than 127; tail, 51; wing, 71; tarsus, 13; bill from gape, 18." (*Oates.*)

"*Young.*—Differs from the adult in being flammulated above, the feathers having large ovate spots of ochraceous buff in their centers, the wing-coverts and quills being edged with rufous-buff; sides of face light brown, streaked with buff; under surface of body white, mottled with dusky brown edgings to the feathers; upper tail-coverts and edges to the tail-feathers rufous.

"*Observation.*—Considerable variation takes place in this species, but only as regards the color of the brown upper surface, which differs in intensity, and as regards the brown on the chest; this varies in extent, being sometimes broad, sometimes narrow, and occasionally dissolved into obscure streaks. The edges to the wing-coverts and quills are often rufescent, and this is probably a sign of immaturity." (*Sharpe.*)

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* The islands of Bongao and Sulu are given here on the authority of Sharpe's Hand-List.

"Included in this list with a good deal of doubt. Sharpe includes the Philippines in the range of this species, but whether he had any other authority for so doing than the Marquis of Tweeddale's identification of a single immature bird from Negros we do not know. We can find no other record of its occurrence in the Philippines, and are inclined to doubt its ever occurring there at all." (*Bourns and Worcester MS.*)

Genus CYORNIS Blyth, 1843.

In *Cyornis* the sexes are slightly different in color; upper parts dark blue or olivaceous: throat and breast some shade of orange-buff or orange-chestnut, or else blue; abdomen light buff or white; bill moderate in size, decidedly, but not conspicuously, flattened; bill from nostril equal to one-half of tarsus and less than middle toe without claw; rictal and nasal bristles moderate; first primary equal to one-half of second; second and third considerably shorter than fourth and fifth, the last two equal and longest; the wing when folded reaching to middle of tail. The young are conspicuously spotted.

Species.

- a^1. Throat and breast deep blue .... **herioti** (p. 436)
- a^2. Throat and breast orange-rufous or buff.
  - b^1. Upper parts blue.
    - c^1. Breast and throat darker and more uniform orange-rufous.
      - d^1. Abdomen and under tail-coverts pure white...... **philippinensis** (p. 438)
      - d^2. Abdomen and under tail-coverts distinctly washed with chestnut-orange or buff .... **banyumas** (p. 437)
    - c^2. Breast lighter orange-rufous; throat much lighter than breast, nearly white (male) .... **lemprieri** (p. 439)
  - b^2. Upper parts dull brown, more or less washed with an olivaceous tinge; tail and its coverts more or less chestnut or ferruginous brown.
    - c^1. Tail and its upper coverts bright chestnut; no white about eye. **platenæ** (p. 441)
    - c^2. Tail and its upper coverts dull rusty brown; a white line above and below eye and extending forward on forehead (female)........ **lemprieri** (p. 439)

398. CYORNIS HERIOTI Ramsay.

BLUE-BREASTED CYORNIS.

Cyornis herioti RAMSAY, Ibis (1886), 159 (♀); SHARPE, Bull. Brit. Orn. Club (1901), 11, 60; Hand-List (1901), 3, 215; McGREGOR and WORCESTER, Hand-List (1906), 71.

Siphia enganensis GRANT, Bull. Brit. Orn. Club (1896), 5, 2; Ibis (1896), 112; WHITEHEAD, Ibis (1899), 111.

Luzon (*Heriot, Whitehead*).

"*Adult male.*—Like the male of *S. pallidipes*, but the sides and flanks are fawn-colored instead of pure white. Length, 152; culmen, 18; wing, 79; tail, 63; tarsus, 22.

"*Adult female.*—Even more different from the female of *S. pallidipes:* the lores are rust-colored instead of white, and a short superciliary band of the same color reaches as far as the eye, above this there is a line of pale blue feathers, confluent across the forehead; the basal part of the outer webs of the tail-feathers washed with pale blue instead of reddish chestnut. Sides of the face dark brown, shading gradually into the rust-colored throat, whereas in the female of *S. pallidipes* the sides of the head are gray, and sharply defined from the bright rust-colored throat. Length, 134; culmen, 16; wing, 74; tail, 55; tarsus, 18." (*Grant.*)

I have not seen the description of *Cyornis herioti* so have quoted Grant's description of *Siphia enganensis* which is the same species. It is evident that we have here a type differing from all the other Philippine species of the genus. The male may be recognized by the blue throat and breast. Heriot's flycatcher is either very rare, or is confined to northern Luzon where it may prove to be abundant.

399. CYORNIS BANYUMAS (Horsfield).

JAVAN CYORNIS.

Muscicapa banyumas HORSFIELD, Trans. Linn. Soc. (1822), 13, 146.

Siphia banyumas SHARPE, Cat. Birds Brit. Mus. (1879), 4, 449; EVERETT, Jour. St. Br. As. Soc. (1889), 20, 132; MEYER and WIGLESWORTH, Birds of Celebes (1898), 1, 368; pl. 14, fig. 1.

Cyornis banyumas SHARPE, Hand-List (1901), 3, 216 (Java); MCGREGOR and WORCESTER, Hand-List (1906), 71.

Cyornis mindorensis MEARNS, Phil. Jour. Sci. (1907), 2, sec. A. 356.

Mindoro (*Mearns, McGregor*); Palawan (*Everett*). Java.

"*Adult male.*—General color above uniform blue, the forehead brighter blue, extending backward over the eye; ear-coverts deep blue; a narrow frontal line from the base of the nostrils, lores, feathers round the eye, chin, and fore part of cheeks black; remainder of under surface of body rich orange-rufous, a little paler and inclining to white on the abdomen; sides of upper breast and thighs blue; wing-coverts blue like the back, the least and median series brighter blue, of about the same color as the forehead and eyebrow; quills dusky brown, externally blue, the inner secondaries entirely blue; tail-feathers dark blue, the outer ones black on the inner web; under wing-coverts and axillars orange-rufous, the edge of the wing blue; quills dusky brown below, lighter on the inner web. 'Bill black; legs pale brownish lead-color; iris dark brown.' (*Everett.*) Length, 142; culmen, 14; wing, 81; tail, 72; tarsus, 16.5.

"*Adult female.*—Similar to the male but distinguished by the white lores. 'Bill black; legs purplish leaden gray; iris brown.' (*Everett.*) Wing, 70; tail, 60; tarsus, 16.

"*Young.*—Robin like. Dusky brown with subterminal spots of orange-buff to all the feathers of the upper surface; wings and tail dusky, externally blue, the secondaries tipped with buff like the coverts; underneath orange-rufous, mottled with dusky margins to the feathers: abdomen whitish." (*Sharpe.*)

"The existence of this species in Palawan rests upon a single skin collected at Puerto Princesa, which is indistinguishable from the male of *S. banyumas* as represented by a considerable series in the British Museum." (*Everett.*)

In the Hand-List Sharpe restricts the distribution of the Javan cyornis to Java, although in the Catalogue of Birds he places in the synonymy of *Siphia banyumas,* the male collected in Palawan by Everett. Mearns has recently described, under the name of *Cyornis mindorensis,* two specimens which certainly seem to be distinct from *C. philippinensis,* but they agree with the description of *C. banyumas* and with the plate of that species in the Birds of Celebes. Mearns does not compare his species with *C. banyumas,* and he could not have done so, as there were no authentic specimens of *C. banyumas* at hand when he wrote his description. Unfortunately such specimens are still lacking. A male from Mariveles, Luzon and a female from Ticao Island differ from ordinary *C. philippinensis* in having the crissum orange-buff, but the color is not so deep as in the specimens from Mindoro. *Cyornis mindorensis* may eventually prove to be a distinct species, but for the present I shall consider it to be the same as *C. banyumas.*

400. CYORNIS PHILIPPINENSIS Sharpe.

PHILIPPINE CYORNIS.

Cyornis philippinensis SHARPE, Trans. Linn. Soc. 2d. ser. Zool. (1877), 1, 325; Hand-List (1901), 3, 216; MCGREGOR and WORCESTER, Hand-List (1906), 72.

Siphia philippinensis SHARPE, Cat. Birds Brit. Mus. (1879), 4, 450; WHITEHEAD, Ibis (1899), 111 (habits).

Ca-man-tí-gon, Siquijor.

Bantayan (*McGregor*); Banton (*Celestino*); Basilan (*Steere Exp., Bourns & Worcester, McGregor*); Bohol (*McGregor*); Bongao (*Everett*); Cebu (*Meyer, Everett, Steere Exp., Bourns & Worcester, McGregor*); Dinagat (*Everett*); Guimaras (*Bourns & Worcester*); Leyte (*Everett*); Luzon (*Jagor, Möllendorff, Everett, Steere Exp., Bourns & Worcester, Whitehead, McGregor*); Marinduque (*Steere Exp.*); Masbate (*Bourns & Worcester, McGregor*); Mindanao (*Everett, Goodfellow*); Mindoro (*Steere Exp., Schmacker, Bourns & Worcester*); Negros (*Everett, Keay*); Panay (*Steere*); Romblon (*Bourns & Worcester, McGregor*); Samar (*Steere Exp., Bourns & Worcester*); Semirara (*Worcester*); Sibutu (*Everett*); Sibuyan (*Bourns & Worcester, McGregor*); Siquijor (*Bourns & Worcester, Celestino*); Sulu (*Guillemard, Bourns & Worcester*); Tablas (*Bourns & Worcester*); Tawi Tawi (*Bourns & Worcester*); Ticao (*McGregor*).

Male.—Above dark blue; a narrow band on forehead continued over each eye lighter blue, as also the lesser wing-coverts; primaries and secondaries black, edged with blue; shafts of rectrices black, inner webs of all but middle pair black; lores black; ear-coverts and sides of neck very dark blue; a black band across chin continued backward on each side of throat; throat, breast, and sides rich orange-rufous, slightly paler on throat; crissum and middle of abdomen white; thighs blue, some of the feathers tipped with white. Iris brown; bill black; legs pale bluish; nails dark blackish brown. Length of a male from Luzon, 140; wing, 73; tail, 61; culmen from base, 14; bill from nostril, 10; tarsus, 18.

Female.—Similar to the male, but lores pale buff; chin and sides of throat orange-rufous instead of black. Length of a female from Sibuyan, 157; wing, 78; tail, 64; culmen from base, 16; bill from nostril, 11; tarsus, 19.

"The Philippine cyornis is a common and wide spread species; it is found in deep forest, along wooded streams, and about clumps of bamboo in the open. Iris nearly black; legs, feet, and nails light slaty brown; bill black. Food worms and insects. Breeding in Cebu in July. Twenty males average: Length, 156; wing, 76; tail, 65; culmen, 17; tarsus, 18; middle toe with claw, 19. Ten females, length, 146; wing, 71; tail, 60; culmen, 16; tarsus, 17; middle toe with claw, 18." (*Bourns and Worcester MS.*)

401. **CYORNIS LEMPRIERI** Sharpe.

LEMPRIERE'S CYORNIS.

Cyornis lemprieri SHARPE, Ibis (1884), 319; Hand-List (1901), 3, 216; MCGREGOR and WORCESTER, Hand-List (1906), 72.
Siphia lemprieri EVERETT, Jour. Str. Br. Roy. As. Soc. (1889), 20, 133; IBIS (1895), 25.

Balabac (*Everett*); Calamianes (*Bourns & Worcester*); Palawan (*Everett, Lempriere, Platen, Steere Exp., Bourns & Worcester, Celestino*).

"*Adult male.*—General color above dull blue, with half concealed tufts of white on the sides of the rump; lesser wing-coverts brighter cobalt, forming a shoulder-patch; median and greater series blackish, externally like the back; alula, primary-coverts, and quills black, with narrow margins of dull blue, broader on the secondaries; tail-feathers blackish, greenish blue externally; head like the back, the base of the forehead brighter cobalt, extending backward over the eye and forming an eyebrow; lores black; sides of face and ear-coverts and cheeks black, glossed with dull blue; a moustachial line of blue feathers tipped with white; a black chin spot; throat and fore neck orange-buff, extending down the sides of the body, but paler and inclining to whitish below the black chin-spot;

center of breast and abdomen white, as also the under tail-coverts, with a slight tinge of buff; lateral breast-feathers tipped with blue, like the back; thighs white, with blackish bases; axillars and under wing-coverts white, slightly tinged with buff; edge of wing blue. Length, 150; culmen, 18; wing, 74; tail, 63; tarsus, 18.

"This species is closely allied to *Siphia philippinensis,* but is much larger, of a more greenish blue, and is especially distinguished by the white moustache, forming a narrow line down each side of the throat." (*Sharpe.*)

"*Female.*—Forehead, crown, and occiput dark plumbeous-gray, washed with olive, each feather with narrow obsolete transverse bars, which are most pronounced on the forehead; sides of neck, mantle, scapulars, and back warm olivaceous-brown, deepening posteriorly into bright ferruginous-brown on the upper tail-coverts; rectrices dark sepia-brown, the exterior webs ferruginous-brown, except on the two central quills, which are wholly ferruginous-brown, and all showing in certain lights close obsolete transverse bars; under surface of the quills hair-brown; primaries dark brown, and all except the first and second margined basally on the outer webs by a thin line of ferruginous-brown; the secondaries and tertials also dark brown, but increasingly margined [with] bright ferruginous-brown until the entire outer webs are of the latter color; under wing-coverts, axillars, and edges of wing white, tinged with buff; major wing-coverts dark brown, with bright ferruginous-brown outer webs; the others coverts broadly tipped with bright ferruginous-brown; a conspicuous line from the nares over the eye and reaching nearly to the posterior angle of the orbit, and a line fringing the lower margin of the orbit, pure white (tinged with buff in some examples); lores black; ear-coverts dark gray, washed with olive; cheeks the same, but rather darker gray; sides and flanks olive-gray, washed with buff; chin white; throat pale buff, passing into deep orange-buff on the breast, on the sides of which some of the plumes show obsolete dusky margins; abdomen and lower tail-coverts white; thigh-plumes dark gray, edged with white. Length, 147; culmen, 17; wing, 73; tail, 60; tarsus, 17.

"In another female from Balabac the dimensions are rather less, but in my original Puerto Princesa specimen they agree very closely. This species is marked by its large bill. The culmen in the type-skin of the male, measured from its insertion in the skull, is 17 mm., and it is the same in a female collected by Mr. Whitehead at Taguso in Palawan." (*Everett.*)

"Abundant in Palawan and the Calamianes islands. Habits like those of *S. philippinensis.* Five males average: Length, 149; wing, 75; tail, 64; culmen, 18; tarsus, 17; middle toe with claw, 18. Three females, length, 149; wing, 70; tail, 58; culmen, 17; tarsus, 16; middle toe with claw, 17. Iris dark brown; legs and feet nearly black often tinged with bluish; bill black." (*Bourns and Worcester MS.*)

The female of this species has been variously identified as *Cyornis banyumas, Siphia elegans,* and *Cyornis herioti.* Everett was the first ornithologist to describe it under the name *Siphia lemprieri* and his description is here quoted.

402. CYORNIS PLATENÆ (Blasius).

PLATEN'S CYORNIS.

Siphia platenæ BLASIUS, Ornis (1888), 308.
Siphia erithacus (not of Blyth), SHARPE, Ibis (1888), 199, pl. 4, fig. 2.
Cyornis erithaca SHARPE, Hand-List (1901), 3, 217; MCGREGOR and WORCESTER, Hand-List (1906), 72.
Cyornis paraguæ MCGREGOR, Condor (1906), 8, 29.
Cyornis platenæ MCGREGOR, Condor (1907), 9, 162.

Palawan (*Lempriere, Whitehead, Platen, Bourns & Worcester*).

"*Adult male.*—General color above rufous-brown, with a slight olivaceous tinge; lesser wing-coverts like the back; median coverts, greater coverts, alula, primary-coverts, and quills blackish brown, more or less broadly edged with the same color as the back, a little more rufous on the latter; upper tail-coverts and tail-feathers bright chestnut; crown of head like the back slightly washed with olive; lores ashy gray; feathers round the eye dusky; ear-coverts olive-brown, washed with tawny; cheeks, throat, and chest orange-rufous; breast and abdomen pure white, as well as the sides of body and flanks; thighs dusky brown: under tail-coverts pale tawny-rufous; under wing-coverts and axillars white; quills below dusky, whitish along their inner edge. Length, 107; culmen, 14; wing, 57; tail, 38; tarsus, 18.

"*Adult female.*—Similar to the male, but with the lores more tawny. Length, 107; culmen, 13; wing, 57; tail, 38; tarsus, 7." (*Sharpe.*)

"Quite rare in the ground collected in by us. Found in thickets in the jungle or forest, and always near the ground. A male measures: Length, 117; wing, 60; tail, 40; culmen, 14; tarsus, 20; middle toe with claw, 19. Two females, length, 111; wing, 57; tail, 39; culmen, 14; tarsus, 19; middle toe with claw, 17. Iris nearly black; legs, feet, and nails light slate-color; bill black." (*Bourns and Worcester MS.*)

Genus MUSCICAPULA Blyth, 1843.

Bill somewhat flattened basally and compressed near the tip; culmen with a decided ridge; rictal bristles moderately developed; wing rather long; first primary equal to about one-half of second; tarsus slender and equal to twice the bill from nostril; length of bird from 100 to 125 mm. This genus is a large group of small flycatchers, the members of which present three distinct types of coloration.

Species.

- a^1. A conspicuous white patch on wing; upper parts black; lower parts white (male) .... **westermanni** (p. 442)
- a^2. No white wing-patch.
  - b^1. Above smoky slate-gray (males).
    - c^1. Under parts largely orange-buff.
      - d^1. Chin, throat, and breast orange-buff; abdomen white.
        - e^1. White eye-brow stripe about 10 mm. in length...... **luzoniensis** (p. 443)
        - e^2. White eye-brow stripe reduced to a small patch.... **montigena** (p. 444)
      - d^2. Chin pure white; throat and breast rich orange-buff.. **nigrorum** (p. 443)
    - c^2. Under parts mostly white; breast and flanks washed with slate-gray.
      - d^1. Head lighter; tail darker; superciliary stripe smaller. **basilanica** (p. 444)
      - d^2. Head darker; tail lighter; superciliary stripe larger. **samarensis** (p. 445)
  - b^2. Above gray, washed with olive-brown; rump and tail washed with reddish brown (females).

403. MUSCICAPULA WESTERMANNI Sharpe.

WESTERMANN'S FLYCATCHER.

Muscicapula westermanni SHARPE, Proc. Zool. Soc. (1888), 270; Hand-List (1901), 3, 224; OATES and REID, Cat. Birds' Eggs (1903), 3, 264, pl. 7, fig. 20; MCGREGOR and WORCESTER, Hand-List (1906), 72.

Muscicapula maculata WHITEHEAD, Ibis (1899), 104 (habits, song).

Luzon (*Whitehead, McGregor*); Mindanao (*Mearns, Goodfellow*); Negros (*Whitehead*). Mountains of Celebes, of northwestern Borneo, and of the Malay Peninsula.

Adult male.—Above, including sides of head and neck, deep black; a wide white band over eye, extending from above lores to nape; lower parts white; wing blackish brown; greater coverts and edges of inner secondaries white, forming a conspicuous patch; tail black, all the rectrices, except the middle pair, with their basal halves white. Iris dark brown; bill, legs, and nails black. Length, about 115; wing, 59; tail, 43; culmen from base, 12; bill from nostril, 7; tarsus, 16.

Adult female.—Above ashy, washed with olive-brown, the latter color strongest on the rump; tail-coverts and edges of rectrices rusty brown; below white; breast, sides, and flanks washed with ashy brown; wings and tail blackish brown. Wing, 56; tail, 40; bill from nostril, 7; tarsus, 161.

Young.—Above slate-gray, heavily washed with olive-brown, the feathers with median spots of ochraceous; below white, the feathers fringed with blackish brown; wing-coverts and secondaries edged with light ochraceous; tips of the greater coverts forming a light bar.

Westermann's flycatcher is very common in Benguet Province, Luzon, where it breeds.

404. **MUSCICAPULA LUZONIENSIS** Grant.

GRANT'S FLYCATCHER.

Muscicapula luzoniensis GRANT, Ibis (1894), 505; WHITEHEAD, Ibis (1899), 105 (habits); SHARPE, Hand-List (1901), 3, 224; MCGREGOR and WORCESTER, Hand-List (1906), 72.

Calayan (*McGregor*); Luzon (*Whitehead, McGregor*); Mindoro (*Whitehead*).

Adult male.—Entire upper parts and sides of neck dark slate-gray; lores, sides of head, and jaw black; from lores over eye a partly concealed band of pure silky white; wings blackish brown; coverts edged with slate-gray; tail similar but darker; chin, throat, breast, and flanks clear orange-buff, slightly darker on breast; a line of white on each side of throat next to the black of jaw; abdomen and under tail-coverts white; thighs blackish brown. Iris dark brown; bill black; legs white with a slight blue wash; nails light brown. Length of a male from Calayan, 127; wing, 67; tail, 50; culmen from base, 12; bill from nostril, 9; tarsus, 19. In a slightly immature male from Calayan the greater coverts and secondaries are tipped with rusty buff.

Adult female.—Above, including sides of head and of neck, olive-gray, becoming olive-brown on lower back, and ferruginous on tail and its coverts; lores and eye-ring pale ocherous-buff; wings brown; wing-coverts edged with olive-gray; secondaries edged with olive-brown; chin, throat, breast, and flanks very pale orange-buff; abdomen and tail-coverts white. Length of a female from Benguet Province, Luzon, 115; wing, 57; tail, 41; culmen from base, 12; bill from nostril, 8; tarsus, 17.

Male in first plumage.—Above dusky brown, each feather with a rusty yellowish buff spot, crown and nape rather streaked; upper tail-coverts rusty; sides of head like crown, with no indication of the adult plumage; wings brown; coverts bluish, each feather with a large buff spot; chin, throat, and upper breast white with a wash of buff; breast more heavily washed with buff and each feather edeged with black, producing a striped effect; abdomen and under tail-coverts white; wing-lining, axillars, and flanks yellowish buff.

Female in first plumage.—A young female is very much like the young male, but the upper parts are dull olive and washed rather than spotted with rusty buff.

The Luzon flycatcher breeds in Benguet Province where young were taken in July. Specimens from Calayan Island are indistinguishable.

405. **MUSCICAPULA NIGRORUM** Whitehead.

WHITEHEAD'S FLYCATCHER.

Muscicapula nigrorum WHITEHEAD, Bull. Brit. Orn. Club (1897), 6, 43; Ibis (1899), 106 (habits, plumage); SHARPE, Hand-List (1901), 3, 224; MCGREGOR and WORCESTER, Hand-List (1906), 72.

Negros (*Whitehead*).

"*Male adult.*—Most nearly allied to *M. luzoniensis* Grant. The general color of the upper parts less gray, but dark slaty blue as in *M. hyperythra.* The chin is pure white, the rest of the under parts richer orange-buff; belly white.

"*Female adult.*—General color of the upper parts dull slate-gray, and not grayish olive-brown as in the female of *M. luzoniensis;* lores and feathers round the eye whiter; breast and under parts as in the male of *M. luzoniensis.*" (*Whitehead.*)

406. MUSCICAPULA MONTIGENA Mearns.

MOUNT APO FLYCATCHER.

Muscicapula montigena MEARNS, Proc. Biol. Soc. Wash. (1905), 18, 8; MCGREGOR and WORCESTER, Hand-List (1906), 72.

K'ri-kri, or *sal-yb-seé-bon*, Bagobo of Mount Apo.

Mindanao (*Mearns*).

"*Adult male* (*two specimens*).—General color of upper parts including lores, eye-ring, and sides of head dark slaty blue; white eyebrow-stripe reduced to small supraorbital patches; rump slightly washed with olivaceous; upper tail-coverts reddish burnt-umber; tail-feathers burnt-umber; wing-coverts like the back; quills grayish brown, edged with reddish brown externally and with fawn-color internally; under parts, except belly and sides, ochraceous, palest on the chin and under tail-coverts, belly whitish; sides bluish slate; lining and edge of wing ochraceous-buff. Length, 128; alar expanse, 208; wing, 65; tail, 51; bill from anterior border of nostril, 8.1; culmen, 10.5; tarsus, 18.5; middle toe with claw, 15.5. Iris brown; bill black; feet and claws light gray.

"*Adult female* (*two specimens*).—Similar to the adult male except that the slaty blue of the back and rump are more perceptibly washed with olivaceous, and the lores, eye-ring, and touches on the ear-coverts are ochraceous-buff. Length, 125; alar expanse, 197; wing, 62; tail, 47; bill from anterior border of nostril, 7.5; culmen, 10.5; tarsus, 18; middle toe with claw, 16.5. Iris brown; bill black; feet and claws grayish flesh-color.

"*Immature female.*—Similar to adult females, but paler below, with obscure spotting across the chest and on the sides." (*Mearns.*)

This species was discovered by Mearns on Mount Apo at 1,800 meters altitude.

407. MUSCICAPULA BASILANICA (Sharpe).

BASILAN FLYCATCHER.

Dendrobiastes basilanica SHARPE, Trans. Linn. Soc. 2d ser. Zool. (1877), 1, 332.

Muscicapula basilanica SHARPE, Hand-List (1901), 3, 224; MCGREGOR and WORCESTER, Hand-List (1906), 72.

Muscicapula mindanensis BLASIUS, Jour. für Ornith. (1890), 147.

Basilan (*Steere, Bourns & Worcester, McGregor*); Mindanao (*Platen, Bourns & Worcester, Celestino*).

Adult male.—Above, including sides of head and of neck, dark slate-gray; upper tail-coverts nearly black; wings and tail dark brown; secondaries and wing-coverts edged with slate-gray; a partly concealed white patch or band on each side of nape; under parts white; breast, sides, flanks, and thighs washed with slate-gray. A male from Basilan measures: Wing, 69; tail, 43; culmen from base, 13.5; bill from nostril, 9.5; tarsus, 21.

Adult female.—Above, including sides of head and of neck, rich rusty brown, shading into bright chestnut on tail-coverts, tail, and edges of secondaries; wings and tail dark brown; exposed edges of primaries rusty brown; under parts white; breast, sides, flanks, and thighs washed with rusty brown. A female from Basilan measures: Wing, 66; tail, 43; culmen from base, 14; tarsus, 21.

The female of this species resembles very closely the female of *Rhinomyias ruficauda,* but differs in having a shorter tail and longer tarsus.

"We obtained a series of eight specimens from Basilan, and a single bird from Mindanao. Not one of the Basilan birds shows a trace of 'yellowish white' on the tail-feathers; otherwise, they agree with Blasius's description. As the Mindanao bird collected by us also lacks all trace of any lighter color on the tail-feathers, we do not feel like separating the birds from the two islands.

"The Basilan flycatcher is found on the ground in the forest and is fairly common in Mindanao and Basilan. Eight males from the latter island average: Length, 127; wing, 68; tail, 43; culmen, 16; tarsus, 21; middle toe with claw, 19. Iris black; anterior surface of legs and upper surface of feet pale leaden; back surface of legs and bottoms of feet white; bill black." (*Bourns and Worcester MS.*)

408. **MUSCICAPULA SAMARENSIS** Bourns and Worcester.

SAMAR FLYCATCHER.

Muscicapula samarensis Bourns and Worcester, Minnesota Acad. Nat. Sci. Occ. Papers (1894), 1, 26; Grant and Whitehead, Ibis (1898), 237, pl. 6, fig. 6 (egg); Whitehead, Ibis (1899), 105 (habits, plumage); Sharpe, Hand-List (1901), 3, 224; Oates and Reid, Cat. Birds' Eggs (1903), 3, 263; McGregor and Worcester, Hand-List (1906), 72.

Leyte (*Whitehead*); Samar (*Whitehead, Bourns & Worcester*).

"*Adult male.*—Top of head, sides of face, ear-coverts, and hind neck nearly black; back, rump, and upper wing-coverts uniform dark slaty blue; quills and tail fulvous-brown, slightly washed with slaty blue; chin and throat white; entire breast bluish gray, lightest on center of breast; abdomen white; flanks washed with bluish gray; under wing-coverts light buff, nearly white at base; sides dark slate-color as are under wing-coverts and axillars, the latter, however, mottled with white; a superciliary stripe of white beginning over eye and extending to nape, then inward, nearly reaching the median line; sexes alike. Iris very dark brown; bill black; legs, feet, and nails very light brown. Measurements from four males: Length, 119; wing, 61; tail, 38; culmen, 15; tarsus, 20.

"The specimens described are in breeding plumage. They were shot close to, or on, the ground in dense thickets in the deep woods.

"This species is closely allied to *M. mindanensis* Blasius, from which it differs in its darker head, lighter tail, and much larger superciliary stripe. None of our specimens shows a white bar on the rump, but we find the Mindanao-Basilan birds variable in this respect." (*Bourns and Worcester.*)

"*Female.*—Upper parts rusty brown, darkest on the crown, and shading into chestnut on the upper tail-coverts, the superciliary stripes of the male only represented by a white feather or two on the sides of the occiput; wings and tail dark brown, the exposed parts of the quills mostly chestnut; sides of the head and neck light rusty brown, palest round the eye, and forming a rather marked ring; under parts much like those of the male, but the distinct gray pectoral zone is replaced by one tinged with rusty; thighs brownish buff, under tail-coverts buff. The type measures: Length, 109; culmen, 14; wing, 61; tail, 37; tarsus, 19. A second female measures: Length, 109; culmen, 15; wing, 62; tail, 37; tarsus, 19.

"In general appearance the female of *Muscicapula samarensis* bears a close resemblance to *Rhynomyias ruficauda*, the under parts being strangely alike in both. The latter species is, however, easily recognized by its much longer tail. 'Iris and bill black; tarsus bluish white; feet white.—J. W.'

"The Samar white-browed flycatcher is described by Messrs. Bourns and Worcester as having the sexes alike, but a mistake has evidently been made in ascertaining the sex of the slate-colored bird described as a female. Mr. Whitehead obtained two pairs of this species, and the females differ entirely from the males in the color of the upper parts, which are rusty brown, while the strongly marked white eyebrow-stripes are practically absent. There can not be the slightest doubt that the rufous-brown females are fully adult, for one was shot from a nest with four eggs, and that they belong to the same species as the slate-gray males is almost equally certain.

"I observe that the type of *M. mindanensis* Blasius, Jour. für Orn. (1890), 147, a gray bird, is said to have been a female, but here probably a mistake has been made. There are two adult gray examples of this flycatcher from the Steere collection, both of which are said to be males, and they agree perfectly with the description of the type." (*Grant.*)

Whitehead secured two fresh eggs of the Samar white-browed flycatcher near Paranas, Samar, on June 17, 1896. The eggs and nest are described as follows:

"Shape ovate. Ground-color beautiful sea-green, speckled all over, especially toward the larger end, with pale brown, the over-markings being slightly darker and smaller. Measurements 19 mm. by 13 mm.

"The nest, a remarkably frail structure, was made of roots and lined with broad leaves. It was well concealed, being placed close to the ground in a heap of forest-drift near some rocks. The female bird was snared." (*Grant and Whitehead.*)

Genus GERYGONE Gould, 1841.

Bill moderately depressed, depth at nostrils equal to about two-thirds of its width, or two-fifths of bill from nostril; culmen with a slight ridge; rictal and nasal bristles moderate; wing fairly long, covering when folded about two-thirds of the tail; first primary narrow, equal to one-half of second which is considerable shorter than the subequal third, fifth, and sixth; fourth primary slightly the longest; tarsus slender and equal to twice the length of exposed culmen; tail slightly rounded and considerably shorter than wing. The two Philippine species are very similar in colors; upper parts ashy brown, lower part light yellow, lores whitish.

Species.

a^1. Crown slightly lighter. (Luzon, Mindoro, and other northern islands.) **simplex** (p. 447)

a^2. Crown slightly darker. (Mindanao and Sulu Islands).... **rhizophoræ** (p. 448)

409. GERYGONE SIMPLEX Cabanis.

PHILIPPINE GERYGONE.

Gerygone simplex Cabanis, Jour. für Orn. (1872), 316; Sharpe, Cat. Birds Brit. Mus. (1879), 4, 213; Hand-List (1901), 3, 226; McGregor and Worcester, Hand-List (1906), 72.

Lubang (*McGregor*); Luzon (*Jagor, Bourns & Worcester, McGregor*); Mindoro (*McGregor*); Verde (*McGregor*).

Adult (*sexes alike*).—Above, including sides of head and neck, ashy gray, with a very slight olivaceous tinge on back; lores and a line over eye whitish; under parts clear straw-yellow, deepest on chin and throat; under tail-coverts white, washed with yellow; thighs slightly ashy; wings and tail brown with light edges to the feathers; wing-coverts and upper tail-coverts like the crown; each of the rectrices except the middle pair with a white spot on inner web near tip and a preceding dusky band; edge and lining of wing pale yellow. Iris dark brown; bill black; legs dark plumbeous. A male from Laguna de Bay measures: Length, 122; wing, 51; tail, 36; culmen from base, 12.

Young.—Lubang Island, October 25, 1902. A young bird just able to fly, resembles the adult and differs only in having the under parts very much paler yellow.

This little flycatcher closely resembles the species of *Zosterops* in habits, but it is less common in occurrence. At times small flocks are found feeding in clumps of bamboo or in high mangrove thickets. It has a pleasing note by means of which the members of a flock are kept together. In its active movements from tree to tree it resembles the titmice, but we have never found *Gerygone* in forest. The type of the species was collected in Luzon by Jagor.

"The Philippine gerygone was common about bamboo clumps in the open fields of Luzon. Five males from Luzon average as follows: Wing, 51; tail, 38; culmen, 12; tarsus, 14; middle toe with claw, 12. Five females, wing, 52; tail, 37; culmen, 12; tarsus, 16; middle toe with claw, 16. Iris, legs, feet, and nails black; bill black." (*Bourns and Worcester MS.*)

410. GERYGONE RHIZOPHORÆ Mearns.

MANGROVE GERYGONE.

?Gerygone flaveola GUILLEMARD, Proc. Zool. Soc. (1885), 263.
Gerygone simplex WORCESTER and BOURNS, Proc. U. S. Nat. Mus. (1898), 20, 563 (part).
Gerygone rhizophoræ MEARNS, Proc. Biol. Soc. Wash. (1905), 18, 7; McGREGOR and WORCESTER, Hand-List (1906), 72.

Bongao (*Everett*); Mindanao (*Mearns*); Sulu (*Guillemard, Bourns and Worcester*).

"*Adult male and female* (*seven specimens*).—Upper parts, including entire top and sides of head, ashy brown tinged with olive; upper tail-coverts browner; sides of neck yellowish olive; tail-feathers drab, subterminally and broadly banded with blackish, tipped with drab-gray, and with a white spot near the end of the inner web of all [each of] the tail-feathers except the innermost pair; wing-coverts like the back; quills darker brown and narrowly edged with olive; whole under parts straw-yellow except the crissum which is almost white; lining and edge of wing yellowish white; thighs mixed straw-color and olive-brown; inner edge of quills whitish. Measurements of male: Wing, 50; tail, 39; culmen, 10.5; tarsus, 16." (*Mearns.*)

A female from Zamboanga is the only example of this species examined by me. In this specimen the crown is slightly darker than in specimens of *G. simplex* from Mindoro, Luzon, and Lubang with which I have compared it. Unfortunately Mearns does not compare his species with *G. simplex* which is probably its nearest relative. Guillermard records a gerygone from Sulu as *G. flaveola,* and his specimens were, perhaps, the same as *G. rhizophoræ*.

Genus ZANTHOPYGIA Blyth, 1847.

Bill at nostril slightly broader than deep, slightly compressed toward the tip; rictal bristles moderate, extending half the length of bill; tarsus twice the length of bill from nostril; wings moderate in length, when folded extending nearly to tip of tail; first primary much less than one-half the length of second, the latter less than third and fourth which are subequal and longest; tail square and equal to two-thirds of wing. Sexes very different in colors, the colors of the male are yellow, black, and white.

411. ZANTHOPYGIA NARCISSINA (Temminck).

NARCISSUS FLYCATCHER.

Muscicapa narcissina Temminck, Pl. Col. (1835), 3, pl. 577, fig. 1.
Xanthopygia narcissina Sharpe, Trans. Linn. Soc. 2d. ser. Zool. (1877), 1, 327; Cat. Birds Brit. Mus. (1879), 4, 249; Hand-List (1901), 3, 238; McGregor and Worcester, Hand-List (1906), 73.

Calayan (*McGregor*); Mindanao (*Steere*). Japan, China; in winter to northern Borneo.

Male (*Japan*).—Above, including wings and tail, black; a line from bill over eye to nape bright yellow; back and rump darker yellow; upper tail-coverts black; some of the inner greater wing-coverts white, forming a large patch; chin, throat, and breast bright orange-yellow, becoming paler on lower breast and flanks, and gradually disappearing, leaving the crissum pure white; sides of breast, edge of wing, and thighs black; under wing-coverts and axillars white with slate-gray bases. Wing, 78; tail, 53; culmen from base, 13; bill from nostril, 7; tarsus, 15.

Female (*Calayan Island*).—Above olive-brown, more greenish on rump; upper tail-coverts and tail dull rufescent brown; wings brown, the primaries narrowly, the secondaries and coverts more widely, edged with dirty white or pale rufous-brown; lores, a line over eye, and eye-circle pale yellowish white; lower parts whitish, washed, more or less, with pale yellow which is brighter on throat; breast more or less mottled with dusky brown. Upper mandible black; lower mandible horn-blue; iris dark reddish brown; legs pale blue; nails gray. Length, 127; wing, 73; tail, 47; culmen from base, 13; bill from nostril, 7; tarsus, 16.

"The single male specimen obtained by Steere at Dumalon, Mindanao, in 1874, is still preserved in the Museum of the University of Michigan. No others seem to have been obtained since." (*Bourns and Worcester MS.*)

In Calayan on October 30, 1903, McGregor and Celestino took a female flycatcher which is undoubtedly a specimen of this migratory species, but it was not recorded in the report on the Calayan collection. In the field the female might be mistaken for the willow warbler or for one of the little plain-colored flycatchers, but the male would scarcely be overlooked if it were at all abundant. The species must, therefore, be considered a rare winter visitant to the Philippines.

Genus CYANOPTILA Blyth, 1847.

The genus *Cyanoptila* is not easily distinguished from *Zanthopygia.* In the former genus the colors of the male are blue, black, and white; the wing formula is the same as that of *Zanthopygia;* tail equal to nearly three-fourths of wing; tarsus one and one-half times the length of bill from nostril.

412. CYANOPTILA BELLA (Hay).

JAPANESE BLUE FLYCATCHER.

Muscicapa bella HAY, Madr. Journ. (1845), pt. 2, 158.
Xanthopygia cyanomclæna SHARPE, Cat. Birds Brit. Mus. (1879), 4, 251.
Cyanoptila bella STEJNEGER, Proc. U. S. Nat. Mus. Wash. (1892), **15**, 328; SHARPE, Hand-List (1901), **3**, 238; OATES and REID, Cat. Birds' Eggs (1903), **3**, 269; MCGREGOR and WORCESTER, Hand-List (1906), 73.
Cyanoptila cyanomclæna EVERETT, Ibis (1895), 24.

Balabac (*Everett*); Palawan?* Japan, China, Indo-Chinese countries, northwestern Borneo.

"*Adult male.*—General color above blue, the greater coverts uniform with the back, the lesser and median coverts brighter and more cobalt-blue, forming a shoulder patch; head still brighter and more lazuline blue, richest on the forehead; a narrow frontal line, lores, eyelid, sides of face, and entire throat and chest black; rest of under surface of body pure white, the flanks ashy; thighs black: under wing-coverts dusky brown, broadly edged with blue, the edge of the wing bright blue; primary-coverts and quills dusky brown, externally greenish blue; middle tail-feathers dark blue, the remainder blue on the outer web, black on the inner, with conspicuous white bases to the feathers. 'Bill black; legs brown; iris black.' (*David.*) Length, 140; culmen, 14; wing, 86; tail, 61; tarsus, 15.

"*Observation.*—A male bird from Japan, in the Leiden Museum, marked *Cyanoptila cyanothorax,* is a little different from the full-plumaged male, being of a greener cobalt above, and has the throat washed with greenish blue. The blue color on the head is different being brighter cobalt. Specimens from Borneo do not differ from the Japanese bird described in any important particulars; one has a gloss of blue on the throat and chest, another is more greenish blue above, while a Tingchow male has the back greenish blue, with distinct black shaft-streaks.

"*Adult female.*—Different from the male. Ashy brown above, washed with pale verditer-blue on the scapulars, lower back, and upper tail-coverts; least wing-coverts bright blue as in adult male, the rest and the quills externally verditer-blue, the outermost of the greater series dull brown, edged with ashy brown and narrowly tipped with whitish;

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* Sharpe, Hand-List, gives the locality "Palawan (*winter*)" for this flycatcher; I have not found that it is recorded from Palawan.

tail as in male, but rather more greenish blue; lores and anterior part of cheeks rufescent buff; ear-coverts ashy brown, with whitish shaft-lines; throat, abdomen, and under tail-coverts white; fore-neck, chest, and sides of body ashy brown; under wing-coverts and axillars ashy brown, the edge of the wing blue. 'Bill blackish brown, legs grayish brown, iris dark brown.' (*Swinhoe.*) Wing, 89; tail, 61; tarsus, 15.

"*Young male.*—Similar to old female, but having the back greenish blue, only the head and neck ashy brown, even the crown being slightly shaded with blue; upper tail-coverts with white edgings; wings and tail as in adult, the outer greater coverts tipped with buff; below as in female, but having the throat ochraceous, the breast washed with ocher, as also the sides of the body." (*Sharpe.*)

The Japanese blue flycatcher is a rare winter visitant to the Philippine Islands.

Genus HYPOTHYMIS Boie, 1826.

Bill flattened and depressed for its entire length, the outline not curved inward toward the tip; depth of bill at nostril nearly two-thirds of the width; bill from nostril more than one-half the tarsus; rictal bristles conspicuous, the longest equal to bill from nostril; wings short, about equal to tail; first primary equal to one-half of third; fourth, fifth, and sixth subequal and longest; seventh greater than third; second primary shorter than the secondaries; tail slightly graduated, outermost feathers shorter than middle pair by about one-third the length of tarsus; feathers of head short and soft, occipital crest short; dominative color blue, abdomen white.

413. HYPOTHYMIS OCCIPITALIS (Vigors).

BLACK-NAPED FLYCATCHER.

Muscicapa occipitalis VIGORS, Proc. Zool. Soc. (1831), 97.

Hypothymis occipitalis SHARPE, Cat. Birds Brit. Mus. (1879), 4, 274; Hand-List (1901), 3, 248; OATES and REID, Cat. Birds' Eggs (1903), 3, 273; MCGREGOR, Bur. Govt. Labs. Manila (1905), 34, 18, pl. 13 (nest); MCGREGOR and WORCESTER, Hand-List (1906), 73.

Hypothymis azurea GRANT and WHITEHEAD, Ibis (1898), 237 (eggs); WHITEHEAD, Ibis (1899), 106.

Pi-pit a-zul, Manila.

Bantayan (*McGregor*); Banton (*Celestino*); Basilan (*Steere, Everett, Bourns & Worcester, McGregor*); Bohol (*Steere Exp., McGregor*); Bongao (*Everett*); Calamianes (*Bourns & Worcester*); Caluya (*Porter*); Cebu (*Everett, Bourns & Worcester, McGregor*); Guimaras (*Meyer, Steere Exp., Bourns & Worcester*); Leyte (*Steere Exp.*); Lubang (*McGregor*); Luzon (*Everett, Steere Exp., Möllendorff, Bourns & Worcester, Whitehead, McGregor*); Maestre de Campo (*McGregor & Worcester*); Malanipa (*Murray*); Marinduque (*Steere Exp.*); Masbate (*Bourns & Worcester, McGregor*); Mindanao (*Everett, Steere Exp., Bourns & Worcester, Goodfellow, Celestino*); Mindoro (*Steere Exp., Schmacker, Bourns & Worcester, Everett, Whitehead, McGregor*); Negros (*Layard, Everett, Steere Exp., Bourns & Worcester, Keay*); Palawan (*Whitehead, Platen, Steere Exp., Bourns & Worcester, White*); Panay (*Steere Exp., Bourns & Worcester*); Romblon

(*Bourns & Worcester, McGregor*); Samar (*Steere Exp., Bourns & Worcester*); Sibutu (*Everett*); Sibuyan (*Bourns & Worcester, McGregor*); Siquijor (*Bourns & Worcester, Celestino*); Sulu (*Guillemard, Bourns & Worcester*); Tablas (*Bourns & Worcester*); Tawi Tawi (*Bourns & Worcester*); Ticao (*McGregor*); Verde (*McGregor*). Nicobar Islands, Malay Peninsula, Java, Borneo, Flores, Lombok, Hainan, Formosa.

Male.—General color azure-blue, brighter on head, darker on back and rump and slightly purplish on breast; a narrow line on forehead, another on chin, and a round or oval patch on back of head, velvety black; a narrow crescent of black across breast; abdomen, flanks, and under tail-coverts white; thighs washed with blue; wings and tail black, the edges of the feathers washed with dark blue. Iris dark; bill blue, edged and tipped with black; eyelids and feet blue, nails black; inside of mouth pale greenish yellow. Length, about 160; wing, 65; tail, 65; culmen from base, 13; bill from nostril, 10; tarsus, 15.

Female.—Differs from the male in having the back, rump, wings, and tail brown, in lacking the nuchal patch and breast crescent, and in having the blue of head and throat somewhat duller and the breast bluish gray. Length, about 150; wing, 67; tail, 65; bill from nostril, 9; tarsus, 15.

"We gathered a large series of specimens of this common bird with the purpose of determining whether more than one species occured in the Philippines. It is our decided opinion, after carefully examining a large series of specimens from all parts of the Archipelago, that there is no ground whatever for attempting to separate the birds from different islands. There is a great deal of individual variation in color, but all the various phases may be found in the birds of any one locality, the coloring changing greatly with the season, as well as with age, and frequently a good deal of variation occurs even among fully adult birds shot at a given time.

"If it be granted that we are dealing with but a single species, and we fail to see how anyone can doubt it who will look over a good series of specimens, it only remains to decide what name belongs to it. Sharpe states, Catalogue of Birds (1879), 4, 276, that as the white belly is the character by which the two species are distinguished, and as this is shown clearly in Daubenton's plate of *H. azurea,* he has adopted that title for the Indian bird, in spite of the fact that the plate is professedly founded on the 'Goubemouches bleu des Philippines.' In other words, since the bird figured shows a white belly, Doctor Sharpe thinks it must have come from India and not from the Philippines. Now, while in some of our Philippine birds the belly is washed with blue, and in two specimens is decidedly bluish, in the majority of the specimens it is pure white. We are in no position to go into the question as to whether the Indian and Philippine birds are really distinct, not having the necessary material from India for comparison, but there is most certainly no reason for thinking that the subject of Daubenton's plate did not come from the Philippines because it has a white belly. We therefore retain his title for the Philippine bird. It is one of the commonest birds in the islands.

"Ten males average: Length, 156; wing, 69; tail, 71; culmen, 15; tarsus, 15; middle toe with claw, 14. Five females, length, 147; wing, 67; tail, 67; culmen, 14; tarsus, 15; middle toe with claw, 14. Bill blue in male, but often black in female; legs and feet bluish, nails black." (*Bourns and Worcester MS.*)

A nest of the black-naped flycatcher, containing three eggs, was found in Mindoro in April, it was composed of green moss and soft bits of dry bamboo leaves, and lined with fine blackish fibers. The outside was decorated with cotton-like substance from one of the fulgorid insects. The eggs were white, marked with dots of reddish brown.

A nest and two eggs found by Whitehead near Cape Engaño, Luzon, on May 24, 1895, are described as follows:

"Shape rounded ovate. Ground-color pure white, thickly speckled, especially round the larger end, with small spots and dots of brown-lake and with a few pale lilac under-markings. In general character these eggs resemble those of the tits (*Paridæ*). Measurements 17 mm. by 14 mm.

"Nest cup-shaped, generally placed in a forked branch among the lower growth in old forests. The structure is made of moss firmly bound together with white spider's-web and lined with fine brown fibers." (*Grant and Whitehead.*)

The black-naped flycatcher is one of the commonest of Philippine birds and is found wherever there are thickets or forest. It is more or less solitary in habits.

Genus CAMIGUINIA McGregor, 1907.

Bill moderately flattened as in *Cyanomyias;* culmen less than tarsus and equal to middle toe with claw; rictal bristles longer than bill from nostril; first primary little more than one-half of second, the latter much less than third; fifth longest and slightly longer than fourth and sixth; tail about equal to wing and slightly graduated; feathers of chin, lores, and forehead short, soft, and pile-like; feathers of crown more or less scale-like; occipital crest soft and full.

This genus is intermediate between *Cyanomyias* and *Hypothymis;* from the former it differs in lacking the greatly lengthened crest and the antrorse loral plumes, and from the latter it differs in having the feathers of crown and crest scale-like, instead of soft and velvety.

414. CAMIGUINIA HELENÆ (Steere).

HELEN'S MASKED FLYCATCHER.

Cyanomyas helenæ STEERE. List Birds and Mams. Steere Exped. (1890), 16.
Cyanomyias helenæ WHITEHEAD, Ibis (1899), 106; SHARPE. Hand-List (1901), 3, 249; McGREGOR and WORCESTER, Hand-List (1906), 73.
Camiguinia personata McGREGOR. Phil. Jour. Sci. (1907), 2, sec. A, 346.

Camiguin N. (*McGregor*); Mindanao (*Celestino*); Samar (*Steere Exp., Bourns & Worcester, Whitehead.*

Adult male.—General color light azure-blue; rump and upper tail-coverts lighter; breast darker; frontal line, chin, lores, and a narrow circumocular line velvety black, forming a mask which is narrowly bordered behind with bright silvery cobalt-blue, widest behind forehead and chin; middle of lower breast, abdomen, under tail-coverts, wing-lining, and axillars white; wings and tail black, the exposed edges of feathers dark azure-blue, except first and second primaries; two outermost pairs of rectrices narrowly tipped with white in old birds only. Iris brown; the narrow eyelids light blue; bill blue, except edges and tip which are black; legs and feet blue; nails blackish. Length, 154; wing, 67.5; tail, 67; culmen from base, 15; bill from nostril, 9; tarsus, 16. In the slightly immature, but fully feathered, male the crest is less developed, the feathers of the crown are less scale-like, and the upper parts are darker blue than in the fully adult male.

Adult female.—General color dull verditer-blue; head, neck, and sides of head brighter; forehead dull cobalt; chin whitish, bordered by dull cobalt; throat, breast, and sides grayish, washed with dull azure-blue, shafts white; abdomen, flanks, under tail-coverts, and middle of lower breast white; wings and tail blackish brown, edged with dull verditer-blue. Wing, 64; tail, 64; culmen from base, 14; bill from nostril, 9; tarsus, 17.

Young in first plumage.—Above smoky gray; below white; a dusky band across fore breast; wings and tail blackish brown; primaries and secondaries edged with verditer; outer webs of rectrices washed with verditer.

"Rare in Samar. Always found in company with other flycatchers. Four males average: Length, 137; wing, 63; tail, 62; culmen, 13; tarsus, 14; middle toe with claw, 13. A female, length, 130; wing, 59; tail, 55; culmen, 13; tarsus, 14; middle toe with claw, 13. Iris nearly black; legs and feet slaty blue; nails usually black, in one case bluish slate; bill blue, with black tip; eye-wattles blue. Breeding in August." (*Bourns and Worcester MS.*)

The specimens from Camiguin Island, north of Luzon, on which was based *Camiguinia personata,* are slightly larger than specimens from Mindanao and the latter are probably *Cyanomyias helenæ* of Steere. There appears to be no ground for retaining *C. personata.*

Genus CYANOMYIAS Sharpe, 1879.

Bill slightly compressed near tip, depth at nostril two-thirds of width, outline slghtly concave toward the tip; rictal bristles conspicuous, the longest more than bill from nostril; wing and tail about equal, wing formula as in *Hypothymis;* tarsus one and one-half times the bill from nostril; feathers of head stiffish, decomposed basally and conspicuously antrorse on lores; feathers of occipital crest long and narrow.

415. **CYANOMYIAS CŒLESTIS** (Tweeddale).

CELESTIAL BLUE FLYCATCHER.

Hypothymis cœlestis TWEEDDALE, Ann. & Mag. Nat. Hist. (1877), IV, 20, 536; Proc. Zool. Soc. (1878), 109, pl. 7, fig. 1 (♀).

Cyanomyias cœlestis SHARPE, Cat. Birds Brit. Mus. (1879), 4, 278; Hand-List (1901), 3, 249; MCGREGOR and WORCESTER, Hand-List (1906), 73.

Basilan (*Steere Exp.*, *McGregor*); Dinagat (*Everett*); Luzon (*McGregor*); Mindanao (*Bourns & Worcester*, *Celestino*); Sibuyan (*Bourns & Worcester*).

Male.—General color blue; forehead, lores, and entire head and face clear cerulean blue contrasting strongly with the light cobalt-blue of back, wings, and tail; chin, throat, and fore breast deep azure-blue, becoming gradually fainter and more greenish on lower breast; abdomen, flanks, and under tail-coverts white, washed more or less with turquoise-blue; thighs blue; rectrices black below and their inner webs black above; primaries and secondaries black, edged with blue. Iris white; eyelids light greenish yellow; bill dark blue like throat with black tip and edges; legs very dark blue; nails black. Length of a male from Basilan, 165; wing, 75; tail, 76; culmen from base, 14; bill from nostril, 9; tarsus, 16; crest, 36.

Female.—Differs from the male in having a much shorter crest and less intense colors; top of head darker, of nearly the same shade as back and wings; throat and breast cobalt instead of azure. Wing, 73; tail, 70; bill from nostril, 15; tarsus, 16; crest, 17.

This magnificent flycatcher is very rare; it is found in small numbers, feeding and moving about in the tops of forest trees, associated with species of such genera as *Hypothymis*, *Rhipidura*, and *Pardaliparus*.

"A very rare bird. Found only by accident, and always with other flycatchers. Four males average: Length, 159; wing, 72; tail, 74; culmen, 16; tarsus, 16; middle toe with claw, 15. Two females, length, 154; wing, 73; tail, 74; culmen, 16; tarsus, 17; middle toe with claw, 16. Iris dark brown; legs and feet slaty blue, nails black; bill black at tip and along gape, elsewhere blue; eye-wattles greenish yellow." (*Bourns and Worcester MS.*)

Genus RHIPIDURA Vigors and Horsfield, 1826.

Rictal bristles long and conspicuous, equal to culmen from base or longer; bill wide, depressed for most of its length, slightly compressed near tip; wing shorter than tail; first primary more than one-half of second and less than one-half of third; fourth, fifth, and sixth nearly equal, fifth longest; tail-feathers graduated, the difference between outermost and middle rectrices equal to or greater than culmen; plumage soft, that of head neither scale-like nor pile-like; colors various.

I can see no good reason why *Hypothymis superciliaris* Sharpe and *H. samarensis* Steere should not be placed in the genus *Rhipidura;* their long graduated tail-feathers, long stiff oral bristles, and lax plumage, as well as the similarity in the coloration of the sexes, certainly unite them with the members of *Rhipidura.**

Species.

a^1. Head, throat, and fore-breast blue or blue-gray.
  b^1 Entire upper parts blue.
    c^1. Blue of upper parts lighter, especially on crown; silvery cobalt of forehead more conspicuous .... **superciliaris** (p. 456)
    c^2. Blue of upper parts darker, crown nearly black; less silvery cobalt on forehead .... **samarensis** (p. 457)
  b^2. Back, wings, and tail largely chestnut or cinnamon.
    c^1. Abdomen and flanks white........ **albiventris** (p. 457)
    c^2. Abdomen and flanks brown.
      d^1. Smaller; crown lighter; abdomen and flanks cinnamon-brown. **cyaniceps** (p. 458)
      d^2. Larger; crown darker; abdomen and flanks light chestnut-brown. **sauli** (p. 458)
a^2. Top and sides of head black.
  b^1. Chin and throat black.
    c^1. Fore breast cinnamon-brown like the rest of breast and abdomen. **nigrocinnamomea** (p. 459)
    c^2. Fore breast white .... **hutchinsoni** (p. 460)
  b^2. Chin and throat white with a black pectoral band........ **nigritorquis** (p. 460)

416. RHIPIDURA SUPERCILIARIS (Sharpe).

MINDANAO BLUE FANTAIL.

Hypothymis superciliaris SHARPE, Trans. Linn. Soc. Zool. 2d. ser. (1877), 1, 236; Cat. Birds Brit. Mus. (1879), 4, 278; Hand-List (1901), 3, 248; MCGREGOR and WORCESTER, Hand-List (1906), 73.

Basilan (*Steere, Everett, Steere Exp., Bourns & Worcester, McGregor*); Mindanao (*Steere Exp., Platen, Bourns & Worcester, Goodfellow, Celestino*).

Male.—Above dark verditer-blue, top of head darker; forehead and a line over each eye silvery cobalt; wings and tail black, the exposed portions of webs mostly bright cobalt; chin, throat, breast, and thighs dull smoky blue; lower breast and abdomen white, washed with blue-gray. Bill, legs, and nails black; iris brown. Length, about 165; wing, 78; tail, 78; culmen from base, 15; bill from nostril, 9; tarsus, 14.5.

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* See also Whitehead, *Ibis* (1899), 107.

Female.—Similar to the male, but with the blue lighter and more verditer. Wing, 72; tail, 79; bill from nostril, 8.5.

"Very common in the forests of Basilan; a strictly deep woods form. Seven males average: Length, 164; wing, 78; tail, 82; culmen, 15; tarsus, 15; middle toe with claw, 14. Two females, length, 151; wing, 76; tail, 75; tarsus, 15; middle toe with claw, 14. Iris dark brown; bill black; legs, feet, and nails nearly black. Breeding in August in Mindanao and Basilan." (*Bourns and Worcester MS.*)

417. RHIPIDURA SAMARENSIS (Steere).

SAMAR BLUE FANTAIL.

Hypothymis samarensis STEERE, List Birds and Mams. Steere Exped. (1890), 16; SHARPE, Hand-List (1901); 3, 249; MCGREGOR and WORCESTER, Hand-List (1906), 73.

Rhipidura samarensis WHITEHEAD, Ibis (1899), 107 (generic position).

Bohol (*McGregor*); Leyte (*Steere Exp., Whitehead*); Samar (*Steere Exp., Bourns & Worcester, Whitehead*).

Male and female.—Similar to *Rhipidura superciliaris,* but upper parts more verditer-blue; crown much darker, almost black.

"Fairly common in Samar. Found in deep forest in company with other flycatchers. Four males average 119 in length; wing, 61; tail, 38; culmen, 15; tarsus, 20; middle toe with claw, 18. Iris, legs, feet, and nails dark brown; bill almost black. Breeding in July and August." (*Bourns and Worcester MS.*)

418. RHIPIDURA ALBIVENTRIS (Sharpe).

WHITE-BELLIED FANTAIL.

Philentoma albiventris SHARPE, Trans. Linn. Soc. 2d. ser. Zool. (1877), 1, 325.

Rhipidura albiventris SHARPE, Cat. Birds Brit. Mus. (1879), 4, 324; Hand-List (1901), 3, 257; WHITEHEAD, Ibis (1899), 107; MCGREGOR and WORCESTER, Hand-List (1906), 74.

Guimaras (*Steere, Steere, Exp., Bourns & Worcester*); Masbate (*Steere Exp., Bourns & Worcester, McGregor*); Negros (*Everett, Steere Exp., Bourns & Worcester*); Panay (*Steere Exp., Bourns & Worcester*); Ticao (*McGregor*).

Adult (sexes similar).—Head, neck, and upper back grayish blue, streaked with lighter blue on head; back, rump, and upper tail-coverts dark chestnut or bay; chin, throat, breast, and entire sides of head and neck grayish blue, many of the feathers with white shafts; abdomen white; under tail-coverts light chestnut; feathers of thighs with dusky bases; primaries and secondaries blackish, the latter edged with chestnut, this color covering the entire web of two or three innermost secondaries; wing-coverts mostly grayish blue like the neck, but some of the inner ones chestnut; rectrices chestnut except innermost pair and inner webs of next pair which are blackish. Iris dark brown; bill black; legs and nails dark lead-color. Length of a male, 165; wing, 84; tail, 92; culmen from base, 14.5; bill from nostril, 9; tarsus, 18.

"A very showy bird. Common in the forests of the islands where it occurs. Like *R. cyaniceps,* it makes the most of itself. It is bold and easily killed. It is particularly abundant in Negros. Five males average 176 in length: wing, 79; tail, 88: culmen, 16; tarsus, 17; middle toe with claw, 15. Four females, length, 152; wing, 75; tail, 82; culmen, 16; tarsus, 18; middle toe with claw, 15." (*Bourns and Worcester MS.*)

419. **RHIPIDURA CYANICEPS** (Cassin).

RUFOUS-BELLIED FANTAIL.

Muscipeta cyaniceps Cassin, Proc. Acad. Nat. Sci. Phila. (1855), 438; Ornith. Wilkes Exped. (1858), 145, pl. 9, fig. 1.

Philentoma cyaniceps Walden, Trans. Zool. Soc. (1875), **9**, 182, pl. 32, fig. 1.

Rhipidura cyaniceps Sharpe, Cat. Birds Brit. Mus. (1879), **4**, 323; Hand-List (1901), **3**, 257; Grant and Whitehead, Ibis (1898), 236 (eggs); Whitehead, Ibis (1899), 107 (habits, nest); Oates and Reid, Cat. Birds' Eggs (1903), **3**, 276, pl. 8, fig. 17 (egg); McGregor and Worcester, Hand-List (1906), 74.

U-li-li-su, Benguet, Luzon.

Luzon (*Meyer, Everett, Whitehead, Steere Exp., McGregor*).

Adult (*sexes alike*).—Very similar to *R. albiventris,* but abdomen, flanks, and thighs cinnamon-rufous. A male measures: Wing, 75; tail, 86; culmen from base, 12; bill from nostril, 8; tarsus, 18. A female, wing, 74; tail, 81; culmen from base, 12; tarsus, 17.

Whitehead collected a nest and two eggs of this species at Cape Engaño, Luzon, April 29, 1895, which are described as follows:

"Shape ovate. Ground-color rich cream-color. A zone of spots and small blotches round the larger end; the under-markings pale slate-gray, the over-markings darker cream-color. Measurements 19 mm. by 14 mm.

"Nest of the usual cup-shaped type made by all the species of *Rhipidura,* and placed on a dead bough in an open pathway in a conspicuous position." (*Grant and Whitehead.*)

"Sharpe mentions a specimen of *R. cyaniceps* in the British Museum collected in Mindanao by Cuming. It seems to us extremely unlikely that such a bird could have been overlooked by the numerous collectors who have since visited that island, and we do not believe it exists there. Cuming does not seem to have been over particular about recording exact localities in the case of his Philippine collections, and it is not at all improbable that this record is an error." (*Bourns and Worcester MS.*)

420. **RHIPIDURA SAULI** Bourns and Worcester.

SAUL'S FANTAIL.

Rhipidura sauli Bourns and Worcester, Minn. Acad. Nat. Sci. Occ. Papers (1894), **1**, 6; McGregor and Worcester, Hand-List (1906), 74.

Tablas (*Bourns & Worcester, Celestino*).

"*Adult male.*—Head, crown, and nape dull bluish gray, each of the feathers of crown with a narrow, decidedly lighter, shaft-mark, lacking in feathers of nape and mantle; back, rump, upper tail-coverts, scapulars, and upper wing-coverts chestnut; wing black; tertiaries and secondaries heavily edged with chestnut; primaries lightly edged with same color; central pair of tail-feathers black, faintly edged with chestnut on basal half and with shafts black; next pair with inner webs black, outer webs chestnut, shafts black on inner side, chestnut on outer; rest of feathers of tail including shafts chestnut above and below; sides of face, ear-coverts, chin, throat, and upper breast bluish gray like the mantle; feathers of breast with distinct lighter shaft-markings; feathers of lower breast gradually changing to the chestnut of abdomen; flanks, under tail-coverts, and thighs chestnut; axillars and under wing-coverts bluish gray at base, heavily tipped with chestnut; inner webs of quills tipped with chestnut. Female like male but paler. Iris dark brown; legs and feet vary from light to very dark slaty brown; nails blackish; bill black, except base of lower mandible which is gray.

"Twelve males average 184 in length; wing, 84; tail, 91; culmen, 16; tarsus, 18. Three females, length, 174; wing, 76; tail, 83; culmen, 16; tarsus, 19.

"This is another ornithological puzzle of the Tablas-Romblon-Sibuyan group. It seems to be confined to Tablas where it is common in deep forests. It differs from *R. cyaniceps,* its nearest ally, in its larger size and darker blue head and in having the ochraceous buff of under parts replaced by deep chestnut." (*Bourns and Worcester.*)

421. RHIPIDURA NIGROCINNAMOMEA Hartert.

BLACK AND CINNAMON FANTAIL.

Rhipidura nigrocinnamomea HARTERT, Bull. Brit. Orn. Club (1903), **14,** 12; Novit. Zool. (1906), **13,** 758, pl. 2, fig. 1; MCGREGOR and WORCESTER, Hand-List (1906), 74.

Tá-din, Bagobo.

Mindanao (*Goodfellow, Waterstradt, Mearns*).

Adult male.—Entire head, chin, and throat black, with a white line over each eye; fore breast white; rest of under parts cinnamon-rufous and lighter than the cinnamon-rufous of back and rump; wings, tail, and upper tail-coverts chestnut, but primaries and primary-coverts blackish brown, edged with chestnut. Wing, 74; tail, 85; culmen from base, 15; bill from nostril, 8; tarsus, 17. "Iris reddish brown; bill all black; feet dark purplish gray; claws black. Length, 177." (*Mearns.*)

I have not seen the female of the black and cinnamon fantail but the sexes are probably similar in colors. This fine species is found on Mount Apo.

422. **RHIPIDURA HUTCHINSONI** Mearns.

HUTCHINSON'S FANTAIL.

Rhipidura hutchinsoni MEARNS, Phil. Jour. Sci. (1907), 2, sec. A, 357.

Mindanao (*Mearns*).

Adult.—Similar to *R. nigrocinnamomea,* but with no white on the breast which is uniform cinnamon-rufous; the white lines over eyes are connected across the forehead by a wide white band.

"Iris dark brown; bill black; feet plumbeous, with claws nearly black. Skin measurements of the type (adult male) are as follows: Length, 155; wing, 78; tail, 95; culmen, 11.7; tarsus, 19.5. Skin measurements of adult female: Length, 153; wing, 73; tail, 84; culmen, 11; tarsus, 20." (*Mearns.*)

This distinct species was discovered by Mearns on Mount Malindang in northwestern Mindanao.

423. **RHIPIDURA NIGRITORQUIS** Vigors.

BLACK AND WHITE FANTAIL.

Rhipidura nigritorquis VIGORS, Proc. Zool. Soc. (1831), 97; SHARPE, Cat. Birds Brit. Mus. (1879), 4, 334; Hand-List (1901), 3, 261; GRANT and WHITEHEAD, Ibis (1898), 236 (eggs); WHITEHEAD, Ibis (1899), 106 (habits); OATES and REID, Cat. Birds' Eggs (1903), 3, 277, pl. 8, fig. 19; MCGREGOR and WORCESTER, Hand-List (1906), 74.

Ba-ling-sa-say-ao, Ticao; *ca-la-mang-tí-gon,* Bohol; *ma-ri-a-ca-pra,* Manila; *ma-ri-a cong cong,* Laguna de Bay; *ba-li-á-la,* Siquijor.

Bantayan (*McGregor*); Banton (*Celestino*); Basilan (*Everett, Steere Exp., Bourns & Worcester, McGregor*); Bohol (*Everett, McGregor*); Bongao (*Everett*); Buluan, off Mindanao (*Mearns*); Calamianes (*Bourns & Worcester*); Catanduanes (*Whitehead*); Cebu (*Meyer, Everett, Steere Exp., Bourns & Worcester, McGregor*); Cuyo (*McGregor*); Dinagat (*Everett*); Guimaras (*Steere Exp.*); Lubang (*McGregor*); Luzon (*Meyer, Everett, Steere Exp., Whitehead, Bourns & Worcester, McGregor*); Marinduque (*Steere Exp.*); Masbate (*Bourns & Worcester, McGregor*); Mindanao (*Steere, Everett, Steere Exp., Bourns & Worcester*); Mindoro (*Bourns & Worcester, McGregor*); Negros (*Everett, Bourns & Worcester*); Palawan (*Steere, Whitehead, Platen, Steere Exp., Bourns & Worcester*); Panay (*Steere Exp., Bourns & Worcester*); Romblon (*Bourns & Worcester, McGregor*); Samar (*Bourns & Worcester*); Siasi (*Guillemard*); Sibuyan (*Bourns & Worcester, McGregor*); Siquijor (*Bourns & Worcester, Celestino*); Sulu (*Guillemard, Bourns & Worcester*); Tablas (*Bourns & Worcester*); Tawi Tawi (*Bourns & Worcester*); Ticao (*McGregor*); Verde (*McGregor*).

Adult (*sexes similar*).—Above ashy gray; forehead, crown, and sides of face black; a wide white band over each eye, for the most part concealed; below white with a wide ~~white~~ pectoral band; abdomen and crissum washed with pale buff; feathers of thighs black, tipped with pale buff; axillars and wing-lining blackish brown edged with white; rectrices blackish brown, all but middle pair with wide white tips. Iris dark brown; bill, legs, and nails black.

"Common throughout the islands A very showy bird, constantly opening and closing its tail, and dancing about to show its feathers. Three male birds average 190 in length; wing, 87; tail, 110; culmen, 17; tarsus, 21; middle toe with claw, 18. Four females, length, 190; wing, 81; tail, 99; culmen, 17; tarsus, 20; middle toe with claw, 18. Bill, legs, feet, and nails black." (*Bourns and Worcester MS.*)

Two eggs collected by Steere in Marinduque, May 8, 1888, are described as follows:

"Shape ovate. Ground-color pale creamy white, with a rather wide zone round the middle composed of small blotches and spots of pale yellowish brown or lavender-gray; a few scattered spots of the same colors over the rest of the shell. Measurements 18 mm. by 14 mm." (*Grant and Whitehead.*)

A set of three eggs, also collected in Marinduque by Steere, are said to be similar to the above but with the markings rather smaller. The measurements are 19 by 15.

"The two nests are of the usual cup-shaped type, constructed of tightly woven fiber and wide dead grass bound together with spiders' webs, and neatly lined with fine grasses and black fiber." (*Grant and Whitehead.*)

Genus XEOCEPHUS Bonaparte, 1854.

Eye surrounded by a wide fleshy wattle; depth of bill at nostril about two-thirds of its width; rictal bristles strong; first primary more than one-half of second and less than one-half of third; fourth, fifth, and sixth subequal; tarsus equal to exposed culmen; rectrices strongly graduated; color nearly uniform, bright reddish brown, or blue.

Species.

a^1. Plumage bright chestnut-rufous.
  b^1. Central rectrices greatly lengthened (northern islands) .... **rufus** (p. 461)
  b^2. Central rectrices never greatly lengthened (southern islands). **cinnamomeus** (p. 463)
a^2. Plumage nearly uniform blue .... **cyanescens** (p. 463)

424. XEOCEPHUS RUFUS (Gray).

LONG-TAILED RUFOUS FLYCATCHER.

Tchitrea rufa GRAY, Ann. & Mag. Nat. Hist. (1843), **11**, 371.

Zeocephus rufus SHARPE, Cat. Birds Brit. Mus. (1879), **4**, 343; Hand-List (1901), **3**, 262; GRANT, Ibis (1896), 112; GRANT and WHITEHEAD, Ibis (1898), 235, pl. 5, fig. 4 (egg); WHITEHEAD, Ibis (1899), 103 (habits); OATES and REID, Cat. Birds' Eggs (1903), **3**, 279; McGREGOR and WORCESTER, Hand-List (1906), 74.

Mus-ca-dór ca-né-lo, Manila.

Cebu (*Bourns & Worcester, McGregor*); Lubang (*McGregor*); Luzon (*Cuming, Heriot, Möllendorff, Steere Exp., Bourns & Worcester, Whitehead, McGregor*); Marinduque (*Steere Exp.*); Mindoro (*Steere Exp., Bourns & Worcester, McGregor*); Negros (*Steere Exp., Bourns & Worcester*); Panay (*Steere Exp., Bourns & Worcester*); Romblon (*Bourns & Worcester, McGregor*); Samar (*Whitehead*); Sibuyan (*Bourns & Worcester, McGregor*); Tablas (*Bourns & Worcester, Celestino*).

Adult male.—Entire plumage rich chestnut-rufous with inner webs of primaries and secondaries seal-brown near their tips. Iris, eyelids, and bill blue; bill edged and tipped with black; legs and nails lighter blue. Wing, 87; tail, excepting central rectrices, 85; central rectrices, 100 to 190; culmen from base, 20; bill from nostril, 13; tarsus, 16.

Adult female and immature.—Lighter in color and with lower breast, abdomen, and tail-coverts whitish; central rectrices not greatly lengthened.

"In Jour. für Orn. (1891), 294, Hartert very properly calls attention to the fact that confusion evidently exists as to the distribution of the two rufous species of *Zeocephus,* and he even seems to question the distinctness of the two species. We have some suggestions to offer, after looking over our series of thirty-one specimens from Luzon, Mindoro, Panay, Negros, Cebu, Basilan, Sulu, and Tawi Tawi. First, the young immature birds of *Z. rufus* have the white belly and general coloring of *Z. cinnamomeus.* They are not to be distinguished from birds of the latter species. Second, out of fifteen specimens from the south, seven do not show a trace of white on the belly, and are of a uniform deep rufous color. Third, we have a male bird in breeding plumage from Cebu which is indistinguishable, so far as shade of rufous is concerned, from Basilan birds. The confusion between the two species is thus readily understood. Are they then distinct? We think that they are for the following reasons: The average fully adult bird from the northern islands is very much darker in color than the darkest of the southern birds. The northern birds have the tail much more strongly graduated than that of the birds from the south. None of our specimens from the south show any special elongation of the central tail-feathers. In one specimen from Tablas and another from Sibuyan the central tail-feathers exceed the rest by fully 75 millimeters. Other birds collected at the same time and place do not show nearly so strong a development of these feathers, but the fact remains that nothing even approaching it is shown by our specimens from the south.

"The dark tips of the tail-feathers described by Dr. Sharpe as characteristic of *Z. cinnamomeus* are simply a sign of immaturity, as is the white of the belly.

"*Zeocephus rufus,* then, inhabits the northern and central Philippines, and is to be distinguished from *Z. cinnamomeus* by its darker color when fully adult, and by its more strongly graduated tail, which has the central feathers at least 75 millimeters longer than the others when the birds are in perfect plumage.

"Four males from Cebu average: Length, 223; wing, 93; tail, 116; culmen, 23; tarsus, 21; middle toe with claw, 18. Five females, length, 201; wing, 86; tail, 106; culmen, 23; tarsus, 21; middle toe with claw, 18. A male from Sibuyan with elongated tail-feathers measures 283 in length; wing, 94; tail, 162; culmen, 24; tarsus, 17; middle toe with claw, 19. Iris almost black; legs and feet blue; nails black, sometimes showing a little blue; bill and eye-wattles bright blue. Breeding in Cebu in June." (*Bourns and Worcester MS.*)

A set of three eggs was collected by Whitehead at Cape Engaño, Luzon, on April 24, 1895. The eggs and nest are described as follows:

"Shape ovate. Ground-color pure white, with a decided zone of small blotches and spots round the pole of the larger end; upper-markings brown-lake, and under-markings lilac. Two of the eggs have small dots of the darker color thinly scattered over the whole shell, while in the third these markings are almost entirely confined to the zone. Measurements 22 mm. by 16 mm.

"Nest much like that built by *Hypothymis azurea*, and placed in similar positions, but within the brown lining is a second lining of fine black fiber taken from the base of the palm-leaves." (*Grant and Whitehead.*)

425. **XEOCEPHUS CINNAMOMEUS** Sharpe.

SHORT-TAILED RUFOUS FLYCATCHER.

Zeocephus cinnamomeus SHARPE, Trans. Linn. Soc. 2d. ser. Zool. (1877), 1, 329; Cat. Birds Brit. Mus. (1879), 4, 343; Hand-List (1901), 3, 262; MCGREGOR and WORCESTER, Hand-List (1906), 74.

Basilan (*Steere, Steere Exp., Bourns & Worcester, McGregor*); Bongao (*Everett*); Mindanao (*Koch & Schadenberg, Goodfellow, Celestino*); Sulu (*Platen, Bourns & Worcester*); Tawi Tawi (*Bourns & Worcester*).

Adult.—Very similar to *X. rufus*, but lighter in color and with the central rectrices not greatly exceeding the next pair. See also the notes under *X. rufus*.

Young.—Not distinguishable from the young of *X. rufus*.

"Both this and *Z. rufus* are strictly deep woods forms, never seen about open country. Eight males from Basilan and Tawi Tawi average: Length, 187; wing, 87; tail, 85; culmen, 24; tarsus, 20; middle toe with claw, 18. Two females, length, 182; wing, 85; tail, 80; culmen, 23; tarsus, 16; middle toe with claw, 18. Iris bright slaty blue to black; nails black; bill blue to black; eye-wattles blue." (*Bourns and Worcester MS.*)

426. **XEOCEPHUS CYANESCENS** Sharpe.

LARGE BLUE FLYCATCHER.

Zeocephus cyanescens SHARPE, Trans. Linn. Soc. 2d. ser. Zool. (1877), 1, 328; Cat. Birds Brit. Mus. (1879), 4, 343; Hand-List (1901), 3, 262; WHITEHEAD, Ibis (1893), 49; MCGREGOR and WORCESTER, Hand-List (1906), 74.

Calamianes (*Bourns & Worcester*); Palawan (*Steere, Lempriere, Platen, Whitehead, Steere Exp., Bourns & Worcester, Celestino, White*).

Male.—General color grayish cobalt or smalt-blue; chin, lores, a small spot at base of lower mandible, and a narrow frontal line velvety black; primaries and secondaries black, edged with blue; rectrices black below and their shafts black. "Eye black; bill and legs cobalt-blue; inside of mouth bright green." (*Whitehead.*) Length, about 215; wing, 93; tail, 100; culmen from base, 23; bill from nostril, 15; tarsus, 17.

Female.—Similar to the male, but abdomen and crissum whitish. Wing, 93; tail, 95; culmen from base, 22; bill from nostril, 14; tarsus, 16.

Young.—Similar to the adult, but lores and forehead blue; back buffy brown; remiges and rectrices largely buffy brown; under tail-coverts white washed with buff.

"Quite common both in Palawan and the Calamianes. A forest form. Four males average: Length, 220; wing, 96; tail, 100; culmen, 25; tarsus, 16; middle toe with claw, 18. Five females, length, 200; wing, 89; tail, 89; culmen, 23; tarsus, 16; middle toe with claw, 17. Iris black; legs and feet blue; nails black; bill blue, deepest at base, tip sometimes black; eye-wattles blue." (*Bourns and Worcester MS.*)

Genus CALLAEOPS Grant, 1895.

"A new genus of *Muscicapidæ* most nearly allied to *Arses,* which it resembles in having a disk-like wattle formed by the prolongation of the eyelid, which entirely surrounds the rather large eye. As in *Terpsiphone,* there is a large, full, occipital crest, and the tarsi and toes are short and slender; but the tail is like that of *Rhipidura,* wedge-shaped and composed of twelve feathers, the outer pair being two-thirds of the length of the middle pair. The first flight-feather is half the length of the second, which is about equal to the tenth; the fourth being slightly the longest." (*Grant.*)

427. CALLAEOPS PERIOPTHALMICA Grant.

SHORT-TAILED PARADISE FLYCATCHER.

Callaeops periopthalmica GRANT, Bull. Brit. Orn. Club (1895), 4, 18; Ibis (1895), 253; WHITEHEAD, Ibis (1899), 108; SHARPE, Hand-List (1901), 3, 263; McGREGOR and WORCESTER, Hand-List (1906), 74.

Luzon (*Whitehead*).

"*Adult male.*—General color deep black with a slight purplish gloss, especially on the back and breast; the middle of lower breast and belly white, the under tail-coverts being edged with the same color. Wattle surrounding the eye, bill, and feet said to be pale blue. Length, 216; wing, 89; tail, 114; tarsus, 15. The only specimen sent home by Whitehead was not of his own collecting, but purchased in Manila and, as I understand, said to have been obtained in that vicinity. The color of the soft parts and sex are, I fancy, only given on the authority of the collector from whom the bird was obtained." (*Grant.*)

Genus TERPSIPHONE Gloger, 1827.

Bill large and depressed; rictal bristles numerous, coarse, and long; head with a full occipital crest; eye surrounded by a wide fleshy wattle; rectrices graduated. The sexes are similar in plumage during the first two years and the birds breed in this immature condition. In the third year the male develops a distinctive plumage and his central rectrices grow to twice the length of the second pair.

Species.

a^1. Adult male mostly pure white; rectrices white with black shafts. affinis (p. 465)
a^2. Adult male mostly black; rectrices black.. nigra (p. 466)

428. TERPSIPHONE AFFINIS (Blyth).

MALAY PARADISE FLYCATCHER.

Tchitrea affinis BLYTH, Jour. As. Soc. Bengal (1846), 15, 292.

Terpsiphone affinis SHARPE, Cat. Birds Brit. Mus. (1879), 4, 349; Hand-List (1901), 3, 263; OATES and REID, Cat. Birds' Eggs (1903), 3, 280; MCGREGOR and WORCESTER, Hand-List (1906), 75.

Luzon (*Cuming*). Malay Peninsula, eastern Himalayas, Indo-Chinese Provinces, Assam, Sumatra, Java, Borneo.

"*Adult male.*—General color pure white, with shaft-lines of black, especially distinct on the greater coverts; quills black, externally edged with white, the inner secondaries white, with longitudinal black centers to the feathers; tail-feathers white, with blackish edges and with distinct black shafts; head, sides of face, and entire throat greenish black, without much metallic gloss; remainder of under surface of body, including the under wing-coverts, pure white; quills blackish below, broadly white along the inner web. Length, 411; culmen, 19; wing, 91; tail, 132; middle tail-feathers, 330; tarsus, 15.

"*Adult female.*—General color orange-rufous, brown on the mantle and scapulars; rump, upper tail-coverts, and tail chestnut; wing-coverts like the back, the greater series orange-rufous, dusky brown on the inner webs; alula, primary-coverts, and primaries black, with a narrow edging of orange-rufous, the secondaries more broadly margined, the innermost being entirely orange-rufous, with longitudinal blackish centers; crown and a moderate crest glossy steel-blue; sides of face and a narrow collar around the hind neck and entire throat and breast ashy gray; remainder of the under surface yellowish buff, sides of the body washed with orange, as also the under tail-coverts, which are slightly more rufous; under wing-coverts rufescent, whiter at base; quills dark brown below, rufous along the inner web. Length, 198; culmen, 22; wing, 90; tail, 105; tarsus, 15.

"*Male in second plumage.*—Very similar to the foregoing, but with a longer tail, the gray on the throat and breast darker, and the white on the belly purer and less fulvous. Length, 216; wing, 89; culmen, 22; tail, 102; middle tail-feathers, 208; tarsus, 15." (*Sharpe.*)

"Included in this list with some doubt on the strength of a specimen mentioned by Hartert." (*Bourns and Worcester MS.*)

429. **TERPSIPHONE NIGRA** McGregor.

BLACK PARADISE FLYCATCHER.

Terpsiphone nigra McGregor, Phil. Jour. Sci. (1907), 2, sec. A, 340, pls. 1 to 3.

Ti-uay-uay, Batan.
Batan (*McGregor*).

Adult male (type).—Black, with a slight purplish blue gloss; middle of abdomen white; under tail-coverts black with white bases and with traces of clay-brown along the edges; wings and tail black with some purplish blue gloss on exposed margins. Iris brown; bill, legs, and wide fleshy eye-wattle bright blue; nails paler blue; inside of mouth pale green. Length in flesh, 383; wing, 91; central rectrices, 282; second pair of rectrices, 131; outermost and shortest pair of rectrices, 65; culmen from base, 19; bill from nostril, 13; tarsus, 15; middle toe with claw, 15; longest crest-feathers, 15.

Nearly adult male.—Similar to the adult, but some feathers of lower back and a few of the inner remiges edged with chestnut; middle of lower breast, axillars, and wing-lining mottled with white; abdomen white; under tail-coverts terra-cotta yellow with small dusky patches. Length, 376; wing, 90; tail-feathers: longest, 267; second, 127; shortest, 80; culmen from base, 19; bill from nostril, 13; tarsus, 16.5; middle toe with claw, 16.5; longest crest-feathers, 16.

Male, first year.—Head, neck, throat, and breast glossy black; mantle, back, and rump bright chestnut; upper tail-coverts chestnut and glossy black (mixed plumage); lower breast gray; abdomen white; flanks dull chestnut; under tail-coverts white washed with terra cotta; alula, primaries and primary-coverts blackish brown; primaries and secondary-coverts edged with chestnut; secondaries edged with rusty brown; rectrices dark brown, slightly chestnut, the outer pair minutely tipped with white. Length, 190; wing, 85; tail, 85; outermost rectrices, 71; culmen from base, 18.5; bill from nostril, 13.

Adult female.—Differs from the adult male, first year, in having mantle, back, tail-coverts, and secondary-coverts reddish brown instead of chestnut. Length, 190; wing, 85; tail, 81; outermost rectrices, 74; culmen from base, 20; bill from nostril, 13. Another female is duller, having the mantle, back, and rump decidedly grayer. Length, 189; wing, 85; tail, 88; culmen from base, 17; bill from nostril, 12.

First plumage.—Above dull brown; top of head, back, and tail dull reddish brown; post ocular band dull ocherous; chin, throat, and breast gray, the latter crossed by an ocherous band; lower breast, abdomen, and under tail-coverts white, slightly washed with ocherous; wings blackish, primaries edged with dull reddish brown; primary-coverts blackish; secondaries and their coverts edged with dull rusty ocherous taking the form of terminal spots on median coverts. Bill dull brown; legs pale blue; nails white.

Apparently this species breeds in its second year but does not reach its most perfect plumage until its fourth year.

A nest taken in Batan Island, May 29, 1907, was saddled securely in the fork of a small branch. The single egg was heavily incubated and measured 15.4 by 20.3. The egg was dull white, sparsely spotted with dark umber-brown.

The black paradise flycatcher is abundant in Batan. Its flight is easy and graceful but rather slow. The call is harsh and cat-like; the song is simple and of limited range. consisting of several clear notes uttered in rapid succession.

The short-tailed black males of this flycatcher agree with the description of *Callaeops periopthalmica,* but the identity of the two species has not been established.

Genus RHINOMYIAS Sharpe, 1879.

Tip of bill overhanging, with a notch near the tip; bill depressed at nostril; rictal bristles moderate; first primary little more than one-half of second which is less than third, fourth longest; tarsus slender, equal to less than one-third the length of tail; bill from nostril more than one-half the length of tarsus.

*Species.**

a^1. Without any distinct eyebrow-stripe.
  b^1. Under parts white, with a wide, strongly marked, pectoral band dividing the throat from the breast and belly; no white patch in front of eye. **albigularis** (p. 468)
  b^2. Under parts whitish with no pectoral band, or with mere traces of one.
    c^1. No ring of chestnut feathers around eye; a gray patch in front of eye. **ruficauda** (p. 470)
    c^2. A ring of chestnut feathers around eye .... **ocularis** (p. 470)
a^2. With a distinct white eyebrow-stripe.
  b^1. Crown olive; lores and fore part of cheeks blackish; pectoral band olive, washed with rufous, shading into clear rust-red on sides and flanks. **insignis** (p. 471)
  b^2. Crown dull black; general color above, including wings and tail, dark slate; below whitish .... **goodfellowi** (p. 469)

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* This key is slightly modified from the one given by Grant, *Ibis* (1896), 542.

430. **RHINOMYIAS ALBIGULARIS** Bourns and Worcester.

WHITE-THROATED RHINOMYIAS.

Rhinomyias albigularis BOURNS and WORCESTER, Minnesota Acad. Nat. Sci. Occ. Papers (1894), 1, 27; GRANT, Ibis (1896), 541; GRANT and WHITEHEAD, Ibis (1898), 237, pl. 5, fig. 3 (egg); WHITEHEAD, Ibis (1899), 109; SHARPE, Hand-List (1901), 3, 267; OATES and REID, Cat. Birds' Eggs (1903), 3, 282; MCGREGOR and WORCESTER, Hand-List (1906), 75.

Guimaras (*Bourns & Worcester*); Negros (*Bourns & Worcester, Whitehead.*)

"*Adult male.*—General color above ochraceous brown, duller on head, much brighter on rump, becoming chestnut on the tips of upper tail-coverts; upper wing-coverts like back; quills nearly black, washed with rusty brown on outer webs, this wash changing to whitish on the primaries; upper surface of tail dull chestnut, the feathers becoming almost black at tips; lores gray; ear-coverts and sides of hind neck like crown; a ring of feathers round eye slightly lighter; chin and entire throat white; entire breast light olive-brown; flanks washed with same color; abdomen pure white; under tail-coverts white, light brown at tips; under wing-coverts, axillars, and inner webs of quills buffy white; bend of wing olive-brown.

"The white throat contrasts strongly with the brown of neck and breast and at once distinguishes this species from all other Philippine representatives of the genus. *R. albigularis* is a deep woods form and is extremely rare in the localities visited by us." (*Bourns and Worcester.*)

"One of the most interesting birds sent from Negros is this white-throated flycatcher, very nearly allied to *R. pectoralis,* which inhabits the south of the Malay Peninsula, Sumatra, and Borneo. The present species may, of course, be distinguished by its considerably larger size and the absence of the white patch in front of the eye, as well as by the more olivaceous brown cheeks and chest-band, which are not so strongly contrasted with the white of the throat. But these differences are really slight, and it seems very curious that the Negros and Guimaras birds should so closely resemble *R. pectoralis* from Borneo, while we find two distinct but closely allied species, *R. ruficauda* and *R. ocularis,* occurring in the intermediate islands. In Prof. Steere's collection we have received the types of *R. samarensis* as well as two specimens collected at Ayala, Mindanao, which he considers to represent an undescribed species. They apparently differ from his *R. samarensis* only in having the culmen reddish brown instead of blackish brown; but this difference is due to immaturity, as is further proved by the subterminal buff spots on the innermost secondaries, which are undoubtedly remains of the first plumage. Again, Prof. Steere distinguishes his *R. samarensis* from *R. ruficauda* Sharpe, of which we have several examples. He says that the former differs 'in having the cheeks brown, not olive, and in having the under surface washed with fulvous brown, this forming a white band across the chest.' In comparing the type of *R. samarensis* with typical examples of *R. ruficauda* from Basilan, we fail to find any difference in the color of the cheeks, and the somewhat indistinct band across the chest, which can hardly be described as 'broad,' is equally well developed in a male from Basilan. There can be no doubt that the birds from Samar (*R. samarensis* Steere), Mindanao, and Basilan (*R. ruficauda* Sharpe) belong to one species and must stand as *R. ruficauda* Sharpe." (*Grant.*)

Whitehead collected a nest and two eggs of this species in Negros on March 31, 1906. They are described as follows:

"Shape [of eggs] short ovate, one much blunter at the small end than the other. Ground-color very pale dull rufous, indistinctly mottled all over with darker shades of the same color. In general appearance these eggs strongly resemble one type laid by the common robin. Measurements 23 mm. by 17 mm.

"The nest, composed of moss and lined with fine roots, was placed in a hole in an old rotten tree about six feet [two meters] from the ground. The eggs were partially incubated, and the female was snared on the nest." (*Grant and Whitehead.*)

431. **RHINOMYIAS GOODFELLOWI** Grant.

GOODFELLOW'S RHINOMYIAS.

Rhinomyias goodfellowi GRANT, Bull. Brit. Orn. Club (1905), 16, 17; Ibis (1906), 482, pl. 18, fig. 2.

Mindanao (*Goodfellow*).

"*Adult female.*—General color above, including the wings and tail, dark slate, shading into dull black on top of head and ear-coverts; a narrow white band across the base of bill, continued over lores in a narrow superciliary stripe; lores and feathers surrounding the upper eyelid black; chin, throat, middle of breast, belly, and under tail-coverts whitish; chest, sides, and flanks brownish-buff; axillars,. under wing-coverts, and inner edge of quills whitish. 'Iris dark reddish brown; bill black; feet ashy gray.' Length, about 157; culmen, 21; wing, 89; tail, 68; tarsus, 21.

"This fine species appears to be quite distinct from all the members of the genus previously described, being at once recognizable by the dark slate-color of the upper parts." (*Grant.*)

432. RHINOMYIAS RUFICAUDA (Sharpe).

RUFOUS-TAILED RHINOMYIAS.

Setaria ruficauda Sharpe, Trans. Linn. Soc. 2d. ser. Zool. (1877), 1, 327.
Rhinomyias ruficauda Sharpe, Cat. Birds Brit. Mus. (1879), 4, 368; Hand-List (1901), 3, 267; Whitehead, Ibis (1899). 109; McGregor and Worcester, Hand-List (1906), 75.
Setaria samarensis Steere, List Birds & Mams. Steere Exped. (1890), 16.

Basilan (*Steere, Everett, Steere Exp., Bourns & Worcester*); Bohol (*McGregor*); Leyte (*Whitehead*); Mindanao (*Steere Exp., Goodfellow, Celestino*); Samar (*Steere Exp., Whitehead*).

Adult male.—Above rich olive-brown, darkest on the head; wing-feathers blackish, edged with olive-brown; tail-coverts and rectrices ferruginous; lores and ear-coverts pale gray, the latter washed with olive; under parts white, washed on sides of throat and of body with pale gray; thighs brown. Bill black; iris brown; legs light blue. Length of a male from Basilan, 152; wing, 74; tail, 57; culmen from base, 17; bill from nostril, 11; tarsus, 18.

Adult female.—Similar to the male but lores obscured with brown and ear-coverts olive-brown. A female from Mindanao measures: Length, 152; wing, 71; tail, 54; culmen from base, 15; bill from nostril, 10; tarsus, 16.

Immature.—Sides and flanks washed with brown and feathers of breast edged more or less with brown; greater and median wing-coverts tipped with spots of light ocherous brown.

See notes on this species under *Rhinomyias albigularis.*

"Not rare in deep forest on Basilan. An immature bird has feathers of head with rufous shaft-markings; feathers of back, and upper wing-coverts with large spots of same color edged with black; breast similarly but more faintly spotted.

"Five males from Basilan average: Length, 143; wing, 74; tail, 60; culmen, 17; tarsus, 16; middle toe with claw, 21. Four females, length, 129; wing, 69; tail, 50; culmen, 16; tarsus, 15; middle toe with claw, 16. Iris dark brown; legs and feet light slate; nails same; bill black." (*Bourns and Worcester MS.*)

433. RHINOMYIAS OCULARIS Bourns and Worcester.

CHESTNUT-EYED RHINOMYIAS.

Rhinomyias occularis Bourns and Worcester, Minnesota Acad. Nat. Sci. Occ. Papers (1894), 1, 27 (error).
Rhinomyias ocularis Sharpe, Hand-List (1901), 3, 267; McGregor and Worcester, Hand-List (1906), 75.

Sulu (*Bourns & Worcester*); Tawi Tawi (*Bourns & Worcester*).

"*Adult* (*sexes alike*).—General color above uniform olive-brown, slightly brighter on the rump; tail dark chestnut, much brighter on outer webs of feathers which are very dull at tips; wing-coverts like back; quills brownish black washed with rusty brown, this becoming whitish on first two or three primaries; lores buffy white; ring of short feathers around eye chestnut; ear-coverts and sides of hind neck fulvous-brown, the former with lighter shaft-stripes; center of throat and fore breast white, grayish along sides; breast and flanks washed with light fulvous-brown; abdomen and under tail-coverts white, the latter faintly tipped with brown; thighs olive-brown; under wing-coverts and axillars whitish; inner webs of secondaries edged with buffy white.

"The peculiar ring of feathers round the eye forms a noticeable character by which this species is readily distinguished from other Philippine representatives of the genus. Iris brown; bill light slaty brown." (*Bourns and Worcester.*)

"Fairly abundant in the forests of Sulu and Tawi Tawi. Food usually insects. Two specimens, however, had been eating fruit. Five males from Tawi Tawi measure: Length, 152; wing, 75; tail, 47; culmen, 17; tarsus, 18; middle toe with claw, 18. Four females from Sulu, length, 154; wing, 78; tail, 50; culmen, 17; tarsus, 19; middle toe with claw, 19. Iris brown; legs, feet, and nails pale slate to light brown; upper mandible dark brown, lower light brown." (*Bourns and Worcester MS.*)

434. RHINOMYIAS INSIGNIS Grant.

LUZON RHINOMYIAS.

Rhinomyias insignis GRANT, Bull. Brit. Orn. Club. (1895), 4, 40; Ibis (1895), 442, pl. 12, fig. 2; WHITEHEAD, Ibis (1899), 109; SHARPE, Hand-List (1901), 3, 267; MCGREGOR and WORCESTER, Hand-List (1906), 75.

Luzon (*Whitehead, McGregor*).

"*Adult male and female.*—The sexes of this extremely handsome flycatcher are perfectly similar to one another in plumage, and most nearly resemble *R. gularis* Sharpe, from Kina Balu, though the differences are remarkably striking. Upper parts olive, washed with sienna on the rump, upper tail-coverts, and tail; the superciliary stripes, chin, and throat-patch, middle of lower breast and belly, and under tail-coverts pure white; lores and fore part of the cheeks blackish; rest of cheeks, ear-coverts, and sides of throat olive washed with rufous, the latter color gradually increasing in intensity on the chest and upper breast, and becoming clear rust-red on the sides and flanks. Quills washed with reddish olive instead of sienna. Adult male, length, 162; wing, 89; tail, 66; tarsus, 28. Adult female, length, 160; wing, 86; tail, 63; tarsus, 28.

"This species is evidently distantly related to *R. albigularis* from Negros and Guimaras and *R. ocularis* from Sulu and Tawi Tawi, described by Bourns and Worcester, Occ. Papers Minnesota Acad. (1894), 1, 27, 28. It resembles both these species in having the middle of the throat, belly, and under tail-coverts white, but may be at once distinguished by the strongly marked white superciliary stripes and clear rust-red of the sides and flanks." (*Grant.*)

A male of this species from Benguet Province was 170 in length. Iris light brown; bill black; legs and feet lead-blue.

Genus CULICICAPA Swinhoe, 1871.

Bill short and depressed, its depth at nostril little more than one-half the width; oral bristles numerous, the longest reaching nearly to tip of bill; first primary more than one-half of second and less than one-half of third; fourth and fifth nearly equal and longest; tarsus slender, equal to twice the bill from nostril; plumage largely yellow.

Species.

a^1. Head, chin, and throat gray, in contrast with the remainder of the plumage. **ceylonensis** (p. 472)

a^2. Head, chin, and throat yellow, uniform with the adjacent parts of the body. **helianthea** (p. 472)

435. CULICICAPA CEYLONENSIS (Swainson).

GRAY-HEADED YELLOW FLYCATCHER.

Platyrhynchus ceylonensis SWAINSON, Zool. Illustr. (1820), ser. 1, 1, pl. 13.

Culicicapa ceylonensis SHARPE, Cat. Birds Brit. Mus. (1879), 4, 369; Hand-List (1901), 3, 268; OATES, Faun. Brit. Ind. Bds. (1890), 2, 38, fig. 16 (bill); OATES and REID, Cat. Birds' Eggs (1903), 3, 283, pl. 9, fig. 6; MCGREGOR and WORCESTER, Hand-List (1906), 75.

Palawan (*Platen*). Khasi Hills, Indian Peninsula, mountains of northwestern Borneo, Malay Peninsula, Ceylon, Java.

Adult male.—Top of head smoky gray; lores and sides of head lighter; remainder of upper parts light greenish yellow, rump a trifle lighter; wings and tail brown, the edges of the feathers greenish yellow, edges of secondaries lighter and more yellowish; chin, throat, and fore breast ashy gray; remainder of lower parts including axillars and wing-lining bright yellow. "Upper mandible black; lower mandible pale fleshy; feet olive-brown; soles yellow." (*Abbott.*) "Iris dark hazel; bill brown, paler at the base and gape; mouth yellow; legs yellowish brown; claws horn-color." (*Oates.*) Length, about 125; wing, 60; tail, 48; culmen from base, 12; bill from nostril, 7; tarsus, 12. Here described from a specimen collected by Abbott in Trong, Lower Siam.

436. CULICICAPA HELIANTHEA (Wallace).

YELLOW FLYCATCHER.

Muscicapa helianthea WALLACE, Proc. Zool. Soc. (1865), 476.

Xantholestes panayensis SHARPE, Trans. Linn. Soc. 2d. ser. Zool. (1877), 1, 327.

Culicicapa panayensis SHARPE, Cat. Birds Brit. Mus. (1879), 4, 371.

Culicicapa hilianthea WHITEHEAD, Ibis (1899), 109 (habits).

Culicicapa helianthea SHARPE, Hand-List (1901), 3, 268; MCGREGOR and WORCESTER, Hand-List (1906), 75.

Bongao (*Everett*); Cebu (*Bourns & Worcester*); Leyte (*Whitehead*); Luzon (*Whitehead, McGregor*); Mindanao (*Mearns*); Negros (*Steere Exp., Bourns &*

Worcester); Palawan (*Platen, Whitehead, Steere Exp., Everett. Bourns & Worcester*); Panay (*Steere*); Tawi Tawi (*Bourns & Worcester*). Celebes, Banggai and Saleyer Islands.

Adult (*sexes similar*).—Above greenish yellow; feathers of crown with dusky centers; lores and sides of head lighter; a circle of feathers around eye bright yellow; under parts uniform bright yellow; wings and tail brown, the edges of the feathers greenish yellow, those of secondaries more yellowish. Upper mandible black; lower mandible pale yellowish, dusky along the edge; legs and nails dark brown. Length, 115. A male from Palawan: Wing, 59; tail, 48; culmen from base, 12; bill from nostril, 7; tarsus, 13. Female, wing, 55; tail, 48; culmen from base, 12; bill from nostril, 6; tarsus, 13.

Young.—Three nestlings collected in Benguet Province, Luzon, on June 1, 1903, resemble the adults, but the upper parts are darker and more greenish; rump and edges of secondaries and coverts pale yellow and entire lower parts pale yellow, brightest on the abdomen.

"The nine specimens collected by us in Tawi Tawi have the back slightly greener and show rather less yellow on the rump than do typical birds from the central Philippines. A deep woods bird with rather a pleasant song. Quite easy to obtain when once seen, as it is not at all shy.

"Three males from Tawi Tawi average: Length, 118; wing, 59; tail, 48; culmen, 14; tarsus, 13; middle toe with claw, 11. Seven females, length, 113; wing, 54; tail, 44; culmen, 14; tarsus, 12; middle toe with claw, 11. Iris nearly black; legs and feet dirty yellowish brown; upper mandible black, lower yellow." (*Bourns and Worcester MS.*)

Genus CRYPTOLOPHA Swainson, 1837.

Bill slender, depth and breadth equal at nostril; nasal and rictal bristles few and weak; wing longer than tail by less than length of tarsus; first primary more than one-half of second and less than one-half of third; fourth and fifth nearly equal and longest; tarsus slender and more than twice the bill from nostril. Small, inconspicuous birds with olive and yellowish green plumage; sexes similar. Some of the species resemble the members of the genus *Acanthopneuste,* but the very short first primary in the latter genus serves to distinguish it.

Species.

a^1. Top of head olive-green, more or less streaked with ashy gray.
  b^1. Lower parts white, more or less streaked and washed with pale yellow.
    c^1. Chin and throat white, streaked with pale yellow............ **olivacea** (p. 474)
    c^2. Chin and throat uniform light yellow.................................. **cebuensis** (p. 474)
  b^2. Lower parts nearly uniform greenish yellow.
    c^1. Smaller, wing and tail shorter; lower parts lighter yellow. **nigrorum** (p. 475)
    c^2. Larger, wing and tail longer; lower parts darker yellow. **mindanensis** (p. 476)
a^2. Top and sides of head chestnut.. **xanthopygia** (p. 476)

437. CRYPTOLOPHA OLIVACEA (Moseley).

OLIVACEOUS FLYCATCHER WARBLER.

Abrornis olivacea MOSELEY, Ibis (1891), 47, pl. 2, fig. 2; SHARPE, Hand-List (1901), 3, 276; MCGREGOR and WORCESTER,* Hand-List (1906), 76.*

Cryptolopha olivacea GRANT, Ibis (1896), 543; WHITEHEAD, Ibis (1899), 110.

Bohol (*McGregor*); Leyte (*Whitehead*); Luzon (*Whitehead*); Mindanao (*Bourns & Worcester, Celestino*); Negros (*Steere Exp., Bourns & Worcester, Whitehead*); Samar (*Steere Exp., Whitehead*); Sulu (*Bourns & Worcester*); Tawi Tawi (*Bourns & Worcester*).

Adult, male and female.—Entire upper parts olive-green; top of head and neck streaked with ashy gray; lores dusky, surmounted by a line of light greenish yellow; eyelids bright yellow; postocular band dusky, surmounted by a narrow whitish line; cheeks and ear-coverts yellowish green, streaked with pale yellow; under parts whitish, streaked with pale yellow; flanks washed with light olive-green; feathers of thighs dusky, tipped with light yellow; under tail-coverts uniform light yellow; wing-feathers brown, edged with olive-green; edge of wing and axillars clear light yellow; rectrices olive-green, the inner webs of two outermost pairs edged with light yellow. A male from Bohol measures: Length, 127; wing, 60; tail, 52; culmen from base, 13; bill from nostril, 8; tarsus, 18. A female from Mindanao, wing, 52; tail, 42; culmen from base, 13: bill from nostril, 8; tarsus, 18.

"*Young birds* have the crown olive-green like the rest of the upper parts, the chin and throat pale yellow, and the outer webs of the outer primaries olive-green like the rest of the quills." (*Grant.*)

"Not uncommon: met with by us in several islands in company with flocks of *Phylloscopus*. Seven males from various localities average: Length, 121; wing, 59; tail, 49; culmen, 15; tarsus, 18; middle toe with claw, 15. Two females, length, 114; wing, 52; tail, 44; culmen, 15; tarsus, 17; middle toe with claw, 14. Iris dark brown to black; legs, feet, and nails light brown: upper mandible dark brown to black; lower mandible yellow." (*Bourns and Worcester MS.*)

438. CRYPTOLOPHA CEBUENSIS Dubois.

CEBU FLYCATCHER WARBLER.

Cryptolopha flavigularis (not of Austen), BOURNS and WORCESTER, Minnesota Acad. Nat. Sci. Occ. Papers (1894), 1, 23.

Cryptolopha cebuensis DUBOIS, Syn. Av. (1900), 286; SHARPE, Hand-List (1901), 3, 274; MCGREGOR and WORCESTER, Hand-List (1906), 75.

Cebu (*Bourns & Worcester, McGregor*).

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* Sharpe, Hand-List (1901), 3, 276, asigns the species *C. nigrorum* and *C. olivacea* to *Abrornis*. Oates says: "*Abrornis* resembles *Cryptolopha* in everything except the tail, which has ten feathers instead of twelve." As the species mentioned above have twelve rectrices I have put them in *Cryptolopha*.

Adult (*sexes alike*).—Similar to *Cryptolopha olivacea*, but uniform olive-green above with no gray lines on head; lighter on rump and tail-coverts; chin and throat clear light yellow; cheeks and ear-coverts light greenish yellow; a band of olive-green from lores through eye to occiput, bordered above by a line of greenish yellow. Iris dark gray; upper mandible dark brown, lower mandible pale yellow; legs pale blue. Male: Length, 127; wing, 58; tail, 44; culmen from base, 14; bill from nostril, 9; tarsus, 19. Female: Wing, 54; tail, 45; culmen from base, 13; bill from nostril, 9; tarsus, 18.

"Only a single specimen collected, but it is so distinct from the allied forms that we have no hesitation in forming a species on the strength of it. Legs, feet, and nails very light brown; upper mandible dark brown, lower mandible light brown; breeding in Cebu in June." (*Bourns and Worcester MS.*)

439. **CRYPTOLOPHA NIGRORUM** Moseley.

GREEN FLYCATCHER WARBLER.

Cryptolopha nigrorum MOSELEY, Ibis (1891), 47, pl. 2, fig. 1; WHITEHEAD, Ibis (1899), 110 (habits).

Abrornis nigrorum SHARPE, Hand-List (1901), 3, 276; MCGREGOR and WORCESTER, Hand-List (1906), 76.*

Luzon (*Whitehead, McGregor*); Mindoro (*Whitehead*): Negros (*Steere Exp., Whitehead*).

Adult (*sexes alike*).—Above dull olive-green, darkest on crown, lightest on rump and tail-coverts; wings and tail brown, the feathers edged with olive-green; two outermost pairs of rectrices edged with white on inner webs; greater coverts tipped with greenish yellow forming a bar; lores and post-ocular band dark brown, surmounted by a greenish yellow line; cheeks and ear-coverts greenish yellow; below nearly uniform greenish yellow or light olive-green, lightest on abdomen and crissum; feathers of throat and breast with white shafts. Length of a male from Benguet Province, Luzon, 114; wing, 57; tail, 40; culmen from base, 11; bill from nostril, 7; tarsus, 20. Female, wing, 52; tail, 37; culmen from base, 11; tarsus, 19.

Young.—An immature bird has the upper parts slightly duller and the line over the eye much paler than the adult; throat and breast very pale yellow; abdomen and crissum light yellow; the sides more dusky than the center of breast and abdomen; pale yellow tips of wing-coverts well-marked.

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* Cf. footnote under *Cryptolopha olivacea*, p. 474.

440. CRYPTOLOPHA MINDANENSIS Hartert.

MINDANAO FLYCATCHER WARBLER.

Cryptolopha mindanensis HARTERT, Bull. Brit. Orn. Club (1903), 14, 12; McGREGOR and WORCESTER, Hand-List (1906), 76; GRANT, Ibis (1906), 481.

Behr-riss behr-riss, Bagobo (Mount Apo).
Mindanao (*Goodfellow*, *Mearns*).

Male.—Above rich olive-yellow; wings and tail brown, edged with olive-green; inner webs of two outermost pairs of rectrices white; no light bar on wing-coverts; lores bright greenish yellow; no dark line through eye and no light line above eye; under parts rich greenish yellow as in the female. Wing, 61; tail, 44; culmen from base, 12; bill from nostril, 7; tarsus, 20. This description is taken from a specimen in poor condition, collected on Mount Apo by Mearns. The description of the type is added.

"*Female.*—Upper surface olive-green; remiges blackish brown, outwardly edged with the color of the back, inwardly with yellowish white; middle rectrices dusky brown, edged with olive-green, outermost pair with the inner webs white, except a brown patch near the base; basal half of outer webs pale sulphur-yellow, distal half, except a line near the shaft, dusky brown; the next pair similar, but with little more brown near the base, and the outer web throughout with dusky patches, the third pair from outside with an irregular white stripe near the shaft on the inner web and a narrow white border; a narrow brownish buff superciliar line, not very conspicuous; under side sulphur-yellow; fore neck and breast tinged with olive-green; under wing-coverts white, yellow near the edge of the wing; under tail-coverts yellow. Wing, 59.5; tail, 45; bill, 10; tarsus, about 18; (not quite certain, because both damaged by shot)." (*Hartert.*)

441. CRYPTOLOPHA XANTHOPYGIA Whitehead.

PALAWAN FLYCATCHER WARBLER.

Cryptolopha xanthopygia WHITEHEAD, Bull. Brit. Orn. Club (1893), 1, 31; Exped. Kina Balu (1893), pl. 16, fig. 2; SHARPE, Hand-List (1901), 3, 275; McGREGOR and WORCESTER, Hand-List (1906), 76.

Cryptolopha montis SHARPE, Hand-List (1901). 3, 275 (part); McGREGOR and WORCESTER, Hand-List (1906). 76.

Palawan (*Whitehead*).

Adult.—Top and sides of head, ear-coverts, and hind neck chestnut; a broad band of black on crown from above eye to side of neck; lores yellowish; eyelids white; cheeks bright yellow, becoming rufous posteriorly; rest of upper parts dull olive-green; rump yellow; wings and tail brown, edged with olive-green; median and greater wing-coverts tipped with yellow, forming a double wing-bar; under parts, including under wing-coverts and axillars, bright yellow with a wash of rufous on sides of upper breast.

I have not seen a specimen of this flycatcher and no good description of it is available.* The above description is compiled from that of *C. montis*. By an oversight *C. montis* has been credited to Palawan by Sharpe and by McGregor and Worcester; as the only specimen of flycatcher warbler from Palawan is the type of *C. xanthopygia*, the former species must be stricken from the list of Philippine birds.

Genus EUMYIAS Cabanis, 1850.

Bill broad and depressed; width at nostril nearly twice the depth; rictal bristles moderate; the wing exceeds the tail by less than length of tarsus; first primary more than one-half of second and less than one-half of third; fourth and fifth nearly equal and longest; tarsus twice the bill from nostril. This genus is similar to *Cyornis*, but in *Eumyias* the sexes are alike in colors and nearly the entire plumage is verditer-blue.

Species.

*a*¹. Forehead and chin verditer-blue to base of bill.
  *b*¹. Feathers of lores with black bases, the tips blue; wing longer. **panayensis** (p. 477)
  *b*². Feathers of lores entirely black; wing shorter.................... **nigriloris** (p. 478)
*a*². Forehead and chin black.. **nigrimentalis** (p. 478)

442. EUMYIAS PANAYENSIS Sharpe.

PANAY VERDITER FLYCATCHER.

Eumyias panayensis SHARPE, Trans. Linn. Soc. 2d. ser. Zool. (1877), 1, 326; MCGREGOR and WORCESTER, Hand-List (1906), 76.

Stoparola panayensis SHARPE, Cat. Birds Brit. Mus. (1879), 4, 440; Hand-List (1901), 3, 286; WHITEHEAD, Ibis (1899), 110 (habits).

Negros (*Steere Exp.*, *Whitehead*); Panay (*Steere*).

"*Adult* (*type of species*).—General color above dull verditer-blue, rather brighter on the forehead and over the eye, forming an indistinct eyebrow; least wing-coverts resembling the back, the greater series and the quills blackish brown, externally edged with dull verditer-blue; tail feathers blackish, also edged with verditer on the outer web; sides of face dull verditer, as also the whole of the throat and breast, shading off into white on the abdomen and flanks, the latter washed with blue; fore part of cheeks and throat slightly varied with silvery tips to the feathers; thighs and under wing- and tail-coverts buffy white. Bill black; feet dark brown. Length, 152; culmen, 14; wing, 75; tail, 62; tarsus, 18." (*Sharpe.*)

"The Panay verditer flycatcher seems to be a mountain form. A single specimen was collected by the Steere Expedition on an expedition into the mountains back of Sibulan, Negros." (*Bourns and Worcester MS.*)

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* Whitehead's diagnosis is as follows: "Similis *C. montis* sed rostro crassiore et uropygio sulphureo destinguenda."

443. EUMYIAS NIGRIMENTALIS (Grant).

BLACK-MASKED VERDITER FLYCATCHER.

Stoparola nigrimentalis GRANT, Bull. Brit. Orn. Club (1894), 3, 50; Ibis (1894), 507, pl. 14, fig. 2; WHITEHEAD, Ibis (1899), 110; SHARPE, Hand-List (1901), 3, 286.

Eumyias nigrimentalis McGREGOR and WORCESTER, Hand-List (1906), 76.

Luzon (*Whitehead, Worcester, McGregor*); Mindoro (*Whitehead*).

Adult (*sexes alike*).—General color verditer-blue, darker above; silvery on forehead, over eyes, and on under parts; forehead, lores, jaw, chin, and line around eye black, forming a mask; abdomen and crissum white, the latter washed with pale ocherous; thighs black, the feathers tipped with white; wings and tail brownish black, the outer webs of the feathers verditer-blue. Iris dark brown; bill, legs, and nails black. Length, 145 to 150. A male measures: Wing, 73; tail, 62; culmen from base, 12; bill from nostril, 8.5; tarsus, 18. A female, wing, 71; tail, 60; culmen from base, 12; bill from nostril, 8.

Nestling.—Above blackish, each feather tipped with rusty yellowish brown; below ocherous or dark buff, the feathers edged with black; middle of abdomen white; the slightly developed primaries, secondaries, and rectrices brownish black edged with blue, as in the adult; wing-coverts like the back.

444. EUMYIAS NIGRILORIS (Hartert).

MINDANAO VERDITER FLYCATCHER.

Stoparola panayensis nigriloris HARTERT, Bull. Brit. Orn. Club (1904), 14, 80.

Eumyias nigriloris McGREGOR and WORCESTER, Hand-List (1906), 76.

Mindanao (*Goodfellow, Mearns*).

"Similar to *St. panayensis panayensis,* but the wing is about 5 mm. shorter, the feathers on the lores black to the tips, not only at the bases; the feathers on the chin and upper throat less squamiform, the bases not so blackish; the lower abdomen and under tail-coverts creamy buff, not buffy white." (*Hartert.*)

A male collected on Mount Apo by Mearns measures: Length, 168; wing, 79; tail, 66; culmen from base, 12; bill from nostril, 8; tarsus, 15.

Family CAMPOPHAGIDÆ.

Bill strong, as wide as deep at nostril, or slightly wider; culmen and cutting edge gently curved throughout their length; a small notch near tip of bill; nostrils covered by short close-set feathers; rictal and nasal bristles short and weak; wing rather long and pointed; first primary short, equal to about one-half the length of wing; second primary considerably shorter than third or fourth; tarsus moderately developed;

feathers of rump with thickened shafts. In this family the bill, legs, and nails are black. The nests are built in trees, and the eggs are usually greenish blue, spotted with brown and gray.

Genera.

a^1. Bill larger and stronger; culmen from base longer than tarsus; wing more than 150 mm.; parts of the body-plumage usually more or less barred with black and white........ **Artamides** (p. 479)

a^2. Bill smaller and more slender; culmen from base equal to, or less than, tarsus; wing less than 140 mm.; body-plumage of the adult never barred with black and white.
  b^1. Much larger; wing more than 125 mm.
    c^1. Wing shorter, about equal to tail; a black collar, incomplete behind. **Malindangia** (p. 485)
    c^2. Wing considerably longer than tail; no black collar...... **Edolisoma** (p. 486)
  b^2. Much smaller; wing less than 125 mm.
    c^1. Tarsus shorter and weaker, less than middle toe with claw; rectrices long, slender, and strongly graduated........ **Pericrocotus** (p. 490)
    c^2. Tarsus longer and stouter, more than middle toe with claw or than culmen from base; rectrices shorter and wider........ **Lalage** (p. 494)

Genus ARTAMIDES Hartlaub, 1865.

Bill large and strong; wing considerably longer than tail; first primary little more than one-half of second, fourth longest; tarsus strong, longer than bill from nostril; tail nearly square, but outermost pair of rectrices decidedly shorter than the others. The Philippine species of *Artamides* are very much alike; the wings and tail are black, and the greater part of the remaining plumage is gray, but certain parts are barred with black and white in nearly all the species. The sexes are unlike and the male is slightly larger than the female. The length is usually more than 260 mm. The key to the species of *Artamides* is modified from the key given by Grant, Ibis (1896), 535.

Species.

MALES.

a^1. Under parts uniform gray.
  b^1. Lores and space in front of eyes deep black.
    c^1. Tail less than 140 mm.
      d^1. Feathers covering the nostrils deep black like the lores.
        e^1. Feathers of the rump gray, fringed with whitish; tail, 120 mm. **striatus** (p. 482)
        e^2. Feathers of the rump uniform gray; tail, 122 to 124 mm. **mindorensis** (p. 483)
      d^2. Feathers covering the nostrils gray like the crown; tail, 132 mm. **cebuensis** (p. 484)
    c^2. Tail more than 140 mm.; feathers covering the nostrils deep black like the lores and the space in front of eyes; tail, 144 mm.... **guillemardi** (p. 481)
  b^2. Lores and space in front of eyes pale gray like the crown; general color pale gray........ **difficilis** (p. 480)

a^2. Throat and breast gray; belly and rest of under parts barred with black and white.

- b^1. Lores and space in front of eye deep black; under tail-coverts white, barred with black, the black bars extending right across the feathers and being about two-thirds of the width of the white interspaces. **panayensis** (p. 483)
- b^2. Lores and space in front of eye gray like the crown; under tail-coverts uniform white; or white with rather narrow wide-set black bars, which are generally confined to the middle of the feathers.............. **kochi** (p. 482)

FEMALES.

a^1. Entire upper and under parts uniform gray.

- b^1. Smaller; wing, 157 mm.; tail, 119.. **mindorensis** (p. 483)
- b^2. Larger; wing, 170 mm.; tail, 142.. **guillemardi** (p. 481)

a^2. Upper and under parts not entirely uniform.

- b^1. Throat and breast uniform gray; belly and under parts barred with black and white.
  - c^1. Lower back, rump, and upper tail-coverts barred with black.
    - d^1. Feathers of rump dark gray, barred with black and fringed with whitish; general color of upper parts and breast darker gray; black bars on the belly and flanks as wide as, or wider than, the white interspaces, giving these parts a much blacker appearance; under tail-coverts with wide bars of black and white, the former being rather wider .... **striatus** (p. 482)
    - d^2. Feathers of rump white, barred with black; general color of upper parts and breast paler gray; black bars on the belly and flanks much narrower than the white interspaces, giving these parts a whiter appearance; under tail-coverts white, with one or two narrow wide-set black bars.. **difficilis** (p. 480)
  - c^2. Lower back, rump, and upper tail-coverts uniform gray like the back. **cebuensis** (p. 484)
- b^2. Entire under parts barred with black to the throat; rump and upper tail-coverts barred with black.
  - c^1. Under tail-coverts widely barred with black and white, the black bars being as wide as the white interspaces; patch of feathers covering the nostrils gray like the rest of the crown; general color of the throat and breast gray, barred with black, contrasting with the black and white belly; black bars on the belly and under parts very wide. **panayensis** (p. 483)
  - c^2. Under tail-coverts either pure white, or white with some black bars; patch of feathers covering the nostrils whitish; general color of throat and breast white, barred with black like the rest of the under parts; black bars on the belly and under parts narrower........................ **kochi** (p. 482)

445. ARTAMIDES DIFFICILIS (Hartert).

PALAWAN ARTAMIDES.

Artamides sumatrensis SHARPE, Cat. Birds Brit. Mus. (1879), 4, 12 (part).
Graucalus sumatrensis difficilis HARTERT, Novit. Zool. (1895), 2, 470.
Artamides difficilis SHARPE, Hand-List (1901), 3, 287.
Artamides dificilis McGREGOR and WORCESTER, Hand-List (1906), 76 (error).

Balabac (*Everett*); Calamianes (*Bourns & Worcester*); Palawan (*Steere, Everett, Lempriere, Whitehead, Steere Exp., Bourns & Worcester, Celestino, White*).

Adult male.—Except wings and tail, nearly uniform pale gray, palest on uropygium and crissum, much lighter gray than in *A. striatus* or *A. mindorensis;* no black on forehead, lores, and chin. A male from Palawan measures: Wing, 158; tail, 115; culmen from base, 29; bill from nostril, 21; tarsus, 25.

Adult female.—General color pale gray like the male; rump and upper tail-coverts white, barred with black; black bars on under parts narrower than the white spaces, and under tail-coverts with only one or two bars on each feather. An immature female from Palawan measures: Wing, 145; tail, 108; culmen from base, 25; bill from nostril, 18; tarsus, 25.

Young.—The young male is barred like the young female and the young of both sexes have white fringes on the rectrices, remiges, and wing-coverts.

"Fairly common; frequents high trees. Three males average: Length, 282; wing, 155; tail, 121; culmen, 32; tarsus, 23; middle toe with claw, 26. A female, length, 279; wing, 150; tail, 114; culmen, 30; tarsus, 25; middle toe with claw, 26. Iris pale yellow; bill, legs, feet, and nails black." (*Bourns and Worcester MS.*)

446. **ARTAMIDES GUILLEMARDI** Salvadori.

GUILLEMARD'S ARTAMIDES.

Artamides pollens GUILLEMARD, Proc. Zool. Soc. (1885), 258.

Artamides guillemardi SALVADORI, Ibis (1886), 153; SHARPE, Hand-List (1901), 3, 288; MCGREGOR and WORCESTER, Hand-List (1906), 76.

Bongao (*Everett*); Lapac (*Guillemard*); Sibutu (*Everett*): Sulu (*Platen, Bourns & Worcester*); Tawi Tawi (*Bourns & Worcester*).

Male.—Under parts uniform gray; feathers covering nostrils, lores, and space in front of eye deep black. Tail, about 144.

Female.—Entire upper and under parts uniform gray as in *A. mindorensis.* Wing, 170; tail, 142.

In naming this species Salvadori compares it with *A. schistaceus* from the Sula Islands and does not state in what way it differs from the previously described Philippine species, but the diagnoses given above are sufficient to distinguish it.

"Fairly common; frequents high trees in the forest. Three males average: Length, 307; wing, 172; tail, 137; culmen, 34; tarsus, 26; middle toe with claw, 30. Four females, length, 316; wing, 168; tail, 137; culmen, 35; tarsus, 25; middle toe with claw, 28. Iris very dark brown; legs, feet, nails, and bill black." (*Bourns and Worcester MS.*)

447. ARTAMIDES STRIATUS (Boddaert).

LUZON ARTAMIDES.

Corvus striatus BODDAERT, Tabl. Pl. Enl. (1783), 38.

Graucalus striatus WALDEN, Trans. Zool. Soc. (1875), 9, 175, pl. 30, fig. 1.

Artamides striatus SHARPE, Cat. Birds Brit. Mus. (1879), 4, 18 (part); Hand-List (1901), 3, 289; MCGREGOR and WORCESTER, Hand-List (1906), 76.

Ba-búy ba-búy-an, Manila.

Lubang (*McGregor*); Luzon (*Meyer, Everett, Steere Exp., Whitehead, McGregor*).

Male.—General color, except remiges and rectrices, dark gray; feathers of rump fringed with white; feathers in front of eyes and covering nostrils, a narrow line above eye, a small patch on jaw, and a few feathers on chin black. Iris straw-yellow; bill, legs, and nails black. Length, about 280; wing, 163; tail, 120; culmen from base, 24; bill from nostril, 20; tarsus, 25. From a Lubang specimen.

Female.—General plumage dark gray; feathers of rump and upper tail-coverts with white tips and subterminal black bars; abdomen, crissum, wing-lining, and axillars black with narrow white bars; lores and feathers around eyes blackish. Wing, 170; tail, 125; culmen from base, 26; tarsus, 26. From a Luzon specimen.

448. ARTAMIDES KOCHI Kutter.

KOCH'S ARTAMIDES.

Artamides kochii KUTTER, Orn. Centralbl. (1882), 183; Journ. für Orn. (1883), 19 of reprint; SHARPE, Hand-List (1901), 3, 289; MCGREGOR and WORCESTER, Hand-List (1906), 76.

Artamides mindanensis STEERE, List Birds & Mams. Steere Exped. (1890), 14.

Artamides kochi WHITEHEAD, Ibis (1899), 102.

Basilan (*Everett, Bourns & Worcester, McGregor*); Bohol (*McGregor*); Leyte (*Whitehead*); Mindanao (*Jacquinot, Steere, Everett, Koch & Schadenberg, Steere Exp., Bourns & Worcester, Celestino, Goodfellow*); Nipa (*Everett*); Panaon (*Everett*); Samar (*Steere Exp., Bourns & Worcester, Whitehead*).

Male.—Rump and tail-coverts barred with black and white; lower breast and abdomen barred with black and white, posteriorly the white bars wider than the black bars; under tail-coverts white, each feather with two or three narrow incomplete black bars. Iris pale yellow. Length, about 280; wing, 162; tail, 122; culmen from base, 29; bill from nostril, 23; tarsus, 25.

Female.—Above similar to the male; lores and feathers over nostrils mottled with white; outermost rectrices tipped with white, and each with a small subterminal black spot; next pair of rectrices slightly tipped with white; entire under parts barred with black and white, the black bars narrow and incomplete as in the male. Wing, 155; tail, 115; culmen from base, 28; bill from nostril, 22; tarsus, 25.

This species is similar in markings to *A. difficilis*, but the general gray color is much darker. The measurements given are taken from specimens collected in Basilan.

"Two males average: Length, 265; wing, 150; tail, 106; culmen, 32; tarsus, 26; middle toe with claw, 27. Four females, length, 273; wing, 149; tail, 109; culmen, 27; tarsus, 24; middle toe with claw, 26. Iris usually pale yellow, but in two cases brownish red; bill, legs, feet, and nails black. Food insects and fruit." (*Bourns and Worcester MS.*)

449. ARTAMIDES PANAYENSIS Steere.

VISAYAN ARTAMIDES.

Artamides panayensis STEERE, List Birds & Mams. Steere Exped. (1890), 14; WHITEHEAD, Ibis (1899), 102; SHARPE, Hand-List (1901), 3, 289; MCGREGOR and WORCESTER, Hand-List (1906), 77.

Ca-ri-ac'-ri-ac', Ticao.

Guimaras (*Steere Exp.*); Masbate (*Steere Exp., Bourns & Worcester, McGregor*); Negros (*Meyer, Steere, Everett, Keay, Whitehead, Bourns & Worcester, Banks*); Panay (*Steere Exp., Bourns & Worcester*); Ticao (*McGregor*).

Male.—Lores, feathers over nostrils, jaw, and chin black; rump and tail-coverts barred with black and white; lower breast, abdomen, and tail-coverts heavily barred with black and white. Iris plum-color; bill, legs, and nails black. Length, 290; wing, 168; tail, 120; culmen from base, 30.

Female.—Similar to the male, but lores, feathers over nostrils, jaw, and chin gray; fore breast narrowly barred. Wing, 165; tail, 120; culmen from base, 28.

"The Visayan artamides is quite common and occurs in small flocks; it is called 'guia-guia' by the natives from its note. Often found in open country. It is bold, and does not fly away when shot at. Four males from Masbate average: Length, 286; wing, 157; tail, 118; culmen, 33; tarsus, 25; middle toe with claw, 30. Four females, length, 289; wing, 156; tail, 117; culmen, 31; tarsus, 26; middle toe with claw, 28. Iris brown; bill, legs, feet, and nails black." (*Bourns and Worcester MS.*)

450. ARTAMIDES MINDORENSIS Steere.

MINDORO ARTAMIDES.

Artamides mindorensis STEERE, List Birds & Mams. Steere Exped. (1890), 14; WHITEHEAD, Ibis (1899), 102; SHARPE, Hand-List (1901), 3, 289; MCGREGOR, Bur. Govt. Labs. Manila (1905), 34, 19 (nest and egg); MCGREGOR and WORCESTER, Hand-List (1906), 77.

Libagao (*Porter*);* Mindoro (*Everett, Steere Exp., Whitehead, Bourns & Worcester*); Tablas (*Bourns & Worcester*).

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* There is some doubt as to the species of *Artamides* found in Libagao, but it is in all probability *A. mindorensis*.

Male.—Lores, nasal plumes, line around eye, jaw, and chin black; rest of plumage gray with no bars; very similar to the male of *A. striatus*, but feathers of uropygium not fringed with white. Iris pale yellow. Wing, 160; tail, 118; culmen from base, 26; bill from nostril, 20; tarsus, 23.

Female.—Uniform gray, similar to the male but no black about eye, lores, etc.; similar to female of *A. guillemardi*, but slightly larger. Wing, 160; tail, 120; culmen from base, 29; bill from nostril, 21; tarsus, 24.

"The differences between *A. guillemardi* and *A. mindorensis* are very slight. Sharpe, Ibis (1894), 254, states that the latter is lighter gray in color than the former. On comparing specimens of these two species we are unable to perceive the slightest difference so far as the general color of the body is concerned. The feathers of the throat and crown in the male of *A. mindorensis* are, however, lighter gray than in the male *A. guillemardi*, so that the black markings on the side of the head stand out more sharply.

"We have a large series of birds from Tablas. In nearly all of them the under wing-coverts are barred with black and white. This we consider to be a sign of immaturity, however, and we do not regard them as specifically distinct from the Mindoro birds, though their general color is slightly darker, and the black head-marking less distinct." (*Bourns and Worcester MS.*)

A nest and one egg were taken in Mindoro on April 26, 1905. The nest is composed of mosses, small leaves, lichens, and fine rootlets; the outside is covered with cobwebs which serve to hold the materials together and to fasten the nest to the fork in which it was built. The nest is about 115 mm. across the top and its outside depth is about 50. The ground-color of the egg is light gray with a slightly greenish tinge; a heavy and continuous wreath of spots and blotches encircles the shell near the plane of its short diameter; a few small spots are scattered about over the entire surface; the deep shell-markings vary from pale to dark lavender; the surface spots and blotches are reddish brown; measurements, 30.7 by 21 mm.

451. ARTAMIDES CEBUENSIS Grant.

CEBU ARTAMIDES.

Artamides cebuensis GRANT, Ibis (1898), 535; SHARPE, Hand-List (1901), 3, 290; MCGREGOR and WORCESTER, Hand-List (1906), 77.

Cebu (*Everett, Bourns & Worcester, McGregor*).

Male.—Lores and line of feathers around eye black; general plumage gray; similar to *A. mindorensis*, but chin and nasal plumes gray. Wing, 170; tail, 130; culmen from base, 31; bill from nostril, 23; tarsus, 27.

Female.—Upper parts, throat, and breast gray; abdomen and crissum closely barred with black and white. Wing, 166; tail, 130; culmen from base, 28; bill from nostril, 22; tarsus, 25.

Genus MALINDANGIA Mearns, 1907.

"Wing and tail about equal; wing-feathers as in *Edolisoma,* third, fourth, and fifth quills longest; tail forked, fourth quill longest, third subequal, outer quill shortest; webs of outer pair of rectrices sharply pointed; in form and pattern the tail resembles that of *Campochæra,* but has the webs more pointed; bill with culmen decidedly shorter than tarsus, narrower at gape than length of outer toe without claw; stiffened shafts of rump-feathers very pronounced." (*Mearns.*)

452. **MALINDANGIA MCGREGORI** Mearns.

MCGREGOR'S CUCKOO SHRIKE.

Malindangia mcgregori MEARNS, Phil. Journ. Sci. (1907), 2, sec. A, 355. Mindanao (*Mearns*).

"*Adult male and female.*—Upper parts including crown, mantle, rump, upper tail-coverts, and middle pair of tail-feathers uniform light gray; forehead, chin, throat, breast, and sides of head to above eyes black; innermost secondaries, scapulars, and least wing-coverts gray like the back; middle and greater wing-coverts and a broad external band on innermost pair of secondaries white; remaining wing-quills black externally, broadly white on inner webs at base; alula all black; axillars and under wing-coverts white; three outer rectrices tipped with grayish white on both webs, the innermost of the three narrowly, the next broadly, and the outermost for more than one-third of its length; chest, flanks, and thighs gray like the back, this color fading to whitish on the abdomen and becoming pure white on the under tail-coverts. Iris red or reddish brown; bill all black; feet plumbeous-black, with under side of toes yellow. Three adult males measure: Length, 236 to 240; alar expanse, 335 to 342; wing, 110 to 113; tail, 108 to 117; culmen, 19 to 19.5; tarsus, 23 to 24; middle toe with claw, 20 to 21. Female: Length, 230; alar expanse, 330; wing, 108; tail, 111; culmen, 19; tarsus, 23; middle toe with claw, 21.

"*Remarks.*—The black of the under side of the head extends around the neck and forms an incomplete black neck-collar which in the oldest males is but narrowly interrupted in the median line above. The sexes are colored alike, but one female (No. 14,177), probably immature, has the black areas of the head and neck replaced by a dark gray color. The plumage otherwise differs from that of the adult only in having scarcely discernible fulvous edgings and wavy cross-bands to the feathers of the abdomen. This species was abundant on Mount Malindang. Fifteen specimens were collected, ten of them males and five females." (*Mearns.*)

Genus EDOLISOMA Jacquinot and Pucheran, 1853.

This genus is similar to *Artamides,* but its members are smaller and the bill is decidedly more slender. The plumage is unbarred in the adult and the male has the chin, throat, forehead, and face masked in black, or else the whole plumage is black. The young have the under parts barred. The following key to species is modified from the one given by Grant, Ibis (1896), 538.

Species.

a^1. Crissum and tips of rectrices black or gray; no white wing-band.
  b^1. Plumage nearly uniform glossy black or blackish gray (males).
    c^1. Plumage entirely glossy black.
      d^1. Back glossed with blue.. **cærulescens** (p. 486)
      d^2. Back slightly glossed with green.. **alterum** (p. 487)
    c^2. Plumage nearly uniform blackish or dark gray (females).
      d^1. Darker; under parts uniform dull smoke-gray........ **cærulescens** (p. 486)
      d^2. Lighter; under parts uniform slate-gray.......................... **alterum** (p. 487)
  b^2. Plumage not entirely uniform in color; wings and tail mostly black; under parts mostly light gray.
    c^1. Band across forehead, lores, sides of face, and throat black (males).
      d^1. Rump and upper tail-coverts whitish gray, much paler than the back. **mindanense** (p. 488)
      d^2. Rump and upper tail-coverts gray, uniform in color with the back.
        e^1. Smaller; wing, 123 mm.. **everetti** (p. 488)
        e^2. Larger; wing, 130 mm.. **elusum** (p. 489)
    c^2. Entire head and throat gray, uniform with back and breast (females).
      d^1. Rump and upper tail-coverts whitish gray, much paler than the back. **mindanense** (p. 488)
      d^2. Rump and upper tail-coverts gray, uniform in color with the back.
        e^1. Smaller; wing, 117 mm.. **everetti** (p. 488)
        e^2. Larger; wing, 125 mm.. **elusum** (p. 489)
a^2. Crissum, tips of rectrices, and wing-band pure white.
  b^1. Forehead, lores, cheeks, throat, and breast black, slightly glossed with greenish (male) .... **panayense** (p. 487)
  b^2. Entire head, throat, and breast gray like back and abdomen (female). **panayense** (p. 487)

453. EDOLISOMA CÆRULESCENS (Blyth).

LUZON CUCKOO SHRIKE.

Ceblepyris cærulescens BLYTH, Jour. As. Soc. Bengal (1842), 11, 463.

Volvocivora (?) cærulescens WALDEN, Trans. Zool. Soc. (1875), 9, 178, pl. 30, fig. 2.

Edoliisoma cærulescens SHARPE, Cat. Birds Brit. Mus. (1879), 4, 44; Hand-List (1901), 3, 294; GRANT and WHITEHEAD, Ibis (1898), 235, pl. 6, fig. 3 (egg); WHITEHEAD, Ibis (1899), 102 (habits); OATES and REID, Cat. Birds' Eggs (1903), 3, 295; MCGREGOR and WORCESTER, Hand-List (1906), 77.

Luzon (*Meyer, Everett, Möllendorff, Whitehead, Steere Exp., McGregor*).

Male.—Entire plumage black; head, neck, back, and under parts slightly glossed with blue; wings very faintly glossed with dark green.

Iris dark; bill, legs, and nails black. Length, about 260; measurements of four males, wing, 127 to 136; tail, 109 to 127; bill from nostril, 18 to 20; depth of bill at angle of gonys, 8.1 to 8.4.

Female.—Under parts uniform dull smoke-gray; above darker and nearly black; upper tail-coverts edged with smoke-gray; wings and tail black, slightly glossed with green. Wing, 125; tail, 115; culmen from base, 23; bill from nostril, 18; tarsus, 21.

The single egg secured by Whitehead in Benguet Province, Luzon, March 14, 1894, was taken from the bird. The egg is thus described:

"Shape ovate. Ground-color pale blue, spotted and dotted over the entire shell. Under-markings gray and grayish lilac; over-markings dark brown. Measurements 29 mm. by 21 mm." (*Grant and Whitehead.*)

454. **EDOLISOMA ALTERUM** Ramsay.

CEBU CUCKOO SHRIKE.

Edoliosoma alterum Ramsay, Ibis (1881), 34.
Edoliisoma alterum Sharpe, Hand-List (1901), 3, 294; McGregor and Worcester, Hand-List (1906), 77.

Cebu (*Everett, Bourns & Worcester, McGregor*).

Male.—Very similar to the male of *E. cærulescens* being entirely black; all the plumage slightly glossed with dark green. Iris brown; bill, legs, and nails black. Length, about 260; measurements of four males, wing, 126 to 136; tail, 110 to 120; bill from nostril, 18 to 19; depth of bill at angle of gonys, 8 to 9.

Female.—Similar to the female of *E. cærulescens*, but much lighter; head, neck, and body slate-gray, somewhat darker above than below; two or three pairs of outer tail-feathers tipped with gray. Wing, 130; tail, 117; culmen from base, 25; bill from nostril, 19; tarsus, 22.

"This cuckoo shrike is fairly common in Cebu; it usually frequents high trees in forest where it may be found in small flocks. Seven males average: Length, 260; wing, 129; tail, 120; culmen, 28; tarsus, 23; middle toe with claw, 23. Four females, length, 249; wing, 120; tail, 113; culmen, 28; tarsus, 22; middle toe with claw, 21. Iris dark brown; bill, legs, feet, and nails black. Food in one case large caterpillars." (*Bourns and Worcester MS.*)

455. **EDOLISOMA PANAYENSE** Steere.

VISAYAN CUCKOO SHRIKE.

Edoliisoma (*Graucalus*) *panayensis* Steere, List Birds & Mams. Steere Exped. (1890), 14.
Edoliisoma panayense Whitehead, Ibis (1899), 103; Sharpe, Hand-List (1901), 3, 294; McGregor and Worcester, Hand-List (1906), 77.

Guimaras (*Steere Exp.*); Negros (*Everett, Steere Exp., Bourns & Worcester, Whitehead, Keay*); Panay (*Steere Exp., Bourns & Worcester*).

"*Male.*—Above lead-black, lighter and washed with ashy on rump and upper tail-coverts; throat, breast, wings, and tail clear black; flanks and thighs plumbeous black; under wing- and tail-coverts white; wing-coverts and outer edges of secondaries forming a white wing-bar as in *Lalage;* feathers of tail tipped with white.

"*Female.*—Plumbeous gray above and below; wings and tail as in male. Legs and beak black. Length, 264; wing, 133; tail, 127; culmen, 25; tarsus, 22." (*Steere.*)

"Four males average as follows: Wing, 128; tail, 120; culmen, 30; tarsus, 23; middle toe with claw, 21. A female, wing, 118; tail, 108; culmen, 28; tarsus, 22; middle toe with claw, 21. Bill, legs, feet, and nails black. Common in the woods of Panay and Negros. Always found by us in flocks and usually in very high trees." (*Bourns and Worcester MS.*)

456. **EDOLISOMA EVERETTI** Sharpe.

EVERETT'S CUCKOO SHRIKE.

Edoliisoma everetti SHARPE, Bull. Brit. Orn. Club (1893), 3, 10; Hand-List (1901), 3, 297; GRANT, Ibis (1896), 538; MCGREGOR and WORCESTER, Hand-List (1906), 77.

Bongao (*Everett*); Sulu (*Bourns & Worcester*); Tawi Tawi (*Bourns & Worcester*).

Male.—Forehead, lores, sides of face and throat black; back, rump, and upper tail-coverts uniform gray; breast, abdomen, and crissum gray. Wing, 123.

Female.—Entire head and throat gray; back, rump, and upper tail-coverts uniform gray.

I have seen neither a specimen nor a detailed description * of this species, but there should be little difficulty in identifying it.

"A male from Sulu measures: Length, 236; wing, 123; tail, 105; culmen, 26; tarsus, 22; middle toe with claw, 24. A female, length, 229; wing, 117; tail, 98; culmen, 26; tarsus, 23; middle toe with claw, 22. Iris very dark brown; bill, legs, feet, and nails black. Quite rare and seems to be confined to the forest." (*Bourns and Worcester MS.*)

457. **EDOLISOMA MINDANENSE** (Tweeddale).

MINDANAO CUCKOO SHRIKE.

Volvocivora mindanensis TWEEDDALE, Proc. Zool. Soc. (1878), 947.

Edoliisoma mindanense SHARPE, Cat. Birds Brit. Mus. (1879), 4, 470; Hand-List (1901), 3, 297; MCGREGOR and WORCESTER, Hand-List (1906), 77.

Basilan (*Steere Exp., Bourns & Worcester, McGregor*); Mindanao (*Everett*).

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* Sharpe's diagnosis reads:

"Mas a mari *E. morionis* ex insula Celebensi vix diversus. Foem. tamen gastraeo toto cinereo concolore facile distinguenda." Sharpe should have compared the male with *E. mindanense* as well as with *E. morio*.

Male.—Above bluish gray, becoming lighter on lower back, and pearl-gray on rump and tail-feathers; frontal band, lores, sides of face to above eyes, chin, throat, and fore breast glossy black; rest of under parts slate-gray; wings and tail mostly black; secondaries and wing-coverts broadly edged with ashy gray; a few of the primaries narrowly edged with ashy gray; two middle rectrices gray for three-fourths of their length and some of the outer ones tipped with gray. Length, about 230; wing, 122; tail, 100; culmen from base, 21; bill from nostril, 16; tarsus, 21.

Female.—Wings and tail as in the male, remaining plumage ashy gray or light slate-gray, becoming delicate pearl-gray on rump, abdomen, and upper and under tail-coverts. Iris dark brown; bill, legs, and nails black. Wing, 117; tail, 92; culmen from base, 21; bill from nostril, 16; tarsus, 22.

"Average length of three males, 218; wing, 115; tail, 92; culmen, 25; tarsus, 21; middle toe with claw, 22. Two females, length, 227; wing, 115; tail, 91; culmen, 24; tarsus, 23; middle toe with claw, 22. Iris, bill, legs, and nails black; food fruit and seeds in the individuals examined. This species is very similar to *E. everetti.*" (*Bourns and Worcester MS.*)

458. **EDOLISOMA ELUSUM** McGregor.

ELUSIVE CUCKOO SHRIKE.

Edoliisoma elusum McGregor, Bureau Govt. Laboratories, Manila (1905), 34, 19; McGregor and Worcester, Hand-List (1906), 77.

Luzon (*Celestino*); Mindoro (*McGregor*).

Male.—Similar to the male of *E. mindanense,* but rump and upper tail-coverts bluish slate-gray like the back and not lighter pearl-gray.

Description of type.—General color bluish slate; chin, throat, fore breast, forehead, and sides of head, including lores and a wide line over eye, jet-black; alula, primary-coverts, and primaries black; inner primaries and inner feathers of alula narrowly edged with gray; secondaries black with wide edges of blue-gray, which cover nearly the entire outer web; secondary-coverts gray; inner webs of quills partly dark blue-gray, this begins as a small basal area on the short first primary, becomes greater on each succeeding quill, and reaches nearly to the tips of inner quills; a narrow edging of white on inner webs of first four quills; tail black; from below outermost pair of rectrices tipped with blue-gray (20 mm. in length); on second pair the gray tip much less, and only a trace on some of the other rectrices; central pair blue-gray above, with a subterminal black area. Length, 236; culmen from base, 22; bill from nostril, 16; wing, 127; tail, 106; tarsus, 23.

Female.—Similar to the female of *E. mindanense,* but rump and upper tail-coverts slate-gray like the back; abdomen and crissum gray like the breast, not lighter as in *E. mindanense.* Length of female type, 236; culmen from base, 22; bill from nostril, 15; wing, 126; tail, 106; tarsus, 23.

The elusive cuckoo shrike seems to be closely related to *E. everetti,* but no direct comparison can be made as the latter species is not represented in the Bureau of Science collection.

Genus PERICROCOTUS Boie, 1826.

Bill short and slightly flattened; wing and tail nearly equal in length, or wing shorter than tail; rectrices very narrow and strongly graduated, the outermost pair being less than one-half the middle pair. Length usually less than 200 mm. Excepting the gray and white *P. cinereus* which is migratory, the Philippine species are glossy black and some shade of bright yellow, red, or orange.

Species.[*]

a^1. Under parts bright red or yellow.
b^1. Breast and abdomen yellow or orange.
c^1. Breast, abdomen, and crissum bright egg-yellow .... **marchesæ** (p. 490)
c^2. Breast, abdomen, and crissum orange.
d^1. Rump and tail-coverts pompeian-orange.
e^1. Bill longer and wider .... **leytensis** (p. 492)
e^2. Bill shorter and narrower .... **novus** (p. 491)
d^2. Rump, tail-coverts, and under parts lighter orange.. **johnstoniæ** (p. 492)
b^2. Breast and abdomen fiery vermilion .... **igneus** (p. 493)
a^2. Under parts white; no red nor yellow on any part of the plumage. **cinereus** (p. 493)

459. PERICROCOTUS MARCHESÆ Guillemard.

MARCHESA MINIVET.

Pericrocotus marchesæ GUILLEMARD, Proc. Zool. Soc. (1885), 259, pl. 18, fig. 1; SHARPE, Hand-List (1901), 3, 300; MCGREGOR and WORCESTER, Hand-List (1906), 77.

Sulu (*Guillemard, Platen, Bourns & Worcester*).

Adult male.—Entire head, chin, throat, and anterior half of back glossy blue-black; lower back, rump, tail-coverts, and all of the under parts, except chin and throat, bright egg-yellow; wings glossy black; a diagonal yellow band begins on middle of fifth primary and extends on to the secondaries where it becomes wider; inner greater secondary-coverts widely tipped with yellow; four or five secondaries each with a yellow spot near tip; rectrices black, all but the central pair with wide yellow tips. Wing, 77; tail, 80; culmen from base, 14; bill from nostril, 10; tarsus, 15.

"This fine bird was several times found in flocks in Sulu, both in the forest and in the open. Iris, bill, legs, feet, and nails black. Six males average, 170 in length; wing, 77; tail, 84; culmen, 17; tarsus, 14; middle toe with claw, 15. Four females, length, 171; wing, 77; tail, 84; culmen, 16; tarsus, 14; middle toe with claw, 14." (*Bourns and Worcester MS.*)

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[*] This key can be used with adult birds only.

460. PERICROCOTUS NOVUS McGregor.

RAMSAY'S MINIVET.

Pericrocotus novus RAMSAY, Ibis (1886), 161 (no description); GRANT, Ibis (1895), 109; (1896), 539 (Negros); WHITEHEAD, Ibis (1899), 103; SHARPE, Hand-List (1901), 3, 300; MCGREGOR, Bull. Philippine Mus. (1904), 3, 13; MCGREGOR and WORCESTER, Hand-List (1906), 77.

Luzon (*Whitehead, McGregor*); Negros (*Whitehead*).

Adult male (*type*).—Chin, throat, neck, sides of neck, head, and mantle black with a faint dark blue gloss; lower back, rump, and upper tail-coverts rich pompeian-orange; lower parts, except chin and throat, rich orange, becoming more intense on under tail-coverts; thighs blackish; wings black, crossed by two bars formed by orange-colored areas on primaries, secondaries, and greater coverts; on the quills these markings have corresponding spots on the inner webs which form a diagonal band of dark buff, seen when inside of wing is examined; lining of wing pale orange: tail from above mostly black, from below mostly fiery orange; this results from the fact that the short outer rectrices are black on the basal half only, while the long central feathers are black for their whole length, the outer webs only being orange near the tips. Length, 184; wing, 80; tail, 90; culmen from base, about 14; tarsus, 16.

Adult female.—Markings somewhat as in the adult male, but the orange replaced by rich lemon-yellow, which extends over the throat, sides of neck, and chin, and also forms a narrow frontal band, the latter extending backward on each side to over center of eye; top of head and mantle black but without gloss. Wing, 79; tail, 89; culmen from base, 15; tarsus, 15.

Immature male.—Resembles the adult female in having the yellow frontal band and in having chin and throat yellow; under parts pale orange mixed with pale lemon-yellow, the under tail-coverts altogether of the latter color; rectrices pale orange, tipped with lemon-yellow, the central pair totally black. On the head and mantle there are many blackish brown feathers tipped with pale buff and other glossy black feathers of the new plumage; lower back and rump orange with a mixture of lemon-yellow; wing-markings very light orange.

Immature female.—Almost exactly like the adult female, but many feathers of head, mantle, sides of neck, and wings brown with buff margins.

461. PERICROCOTUS LEYTENSIS Steere.

STEERE'S MINIVET.

Pericrocotus leytensis STEERE, List Birds & Mams. Steere Exped. (1890), 15; GRANT, Ibis (1897), 224; WHITEHEAD, Ibis (1899), 103; SHARPE, Hand-List (1901), 3, 300 and 301, nos. 8 and 16; MCGREGOR and WORCESTER, Hand-List (1906), 77.

Leyte (*Steere Exp.*, *Whitehead*), Samar (*Bourns & Worcester*, *Whitehead*, *Mearns*).

Male.—"An adult male has the general coloring of *P. igneus,* but is larger and the central tail-feathers are tipped with vermilion. The four outer primaries are black, and at least seven of the secondaries have vermilion markings on the outer webs toward their tips, as well as the broad vermilion bars across their bases. Length, 178; wing, 76; tail, 89." (*Steere.*)

Young.—A young female (Mearns collection) from Samar closely resembles the corresponding plumage of *P. novus* from Luzon, but the bill is decidedly longer and wider in the former specimen. Wing, 78; tail, 86; culmen from base, 15; width of bill at middle of nostril, 7.

462. PERICROCOTUS JOHNSTONIÆ Grant.

MRS. JOHNSTONE'S MINIVET.

Pericrocotus johnstoniæ GRANT, Bull. Brit. Orn. Club (1905), 16, 18; Ibis (1906), 480, pl. 19.

Mindanao (*Goodfellow, Mearns, Clemens*).

"*Adult male.*—Most nearly allied to *P. croceus* Sharpe, from the south of the Malay Peninsula, but differs in having an oblong orange-yellow mark on the terminal portion of the outer web of the six median secondary quills; the chin and throat glossy black like the crown and mantle, and the breast and under parts deep yellow, less tinged with orange. The tail-feathers are black, tipped with orange, increasing in width, so that the outer pairs have the terminal half orange. 'Iris, bill, and feet black.' (*Goodfellow.*) Length, 165; wing, 84; tail, 81; tarsus, 15.

"*Adult female.*—Differs considerably from the female of *P. croceus* in having a narrow bright yellow band across the forehead, continued backward over the lores in a short superciliary stripe; the chin, throat, and all the yellow parts of the plumage bright yellow instead of orange; the six median secondary quills with an oblong yellow mark on the terminal half of the outer web. From the female of *P. leytensis* Steere it is easily distinguished by the narrower and much brighter yellow band across the forehead, as well as by the shining blackish gray crown and mantle." (*Grant.*)

The male of Mrs. Johnstone's minivet is very similar to *P. novus,* but the under parts, especially the tail-coverts, are more yellowish and the lower back, rump, and upper tail-coverts are orange-red instead of pompeian-orange. A male from Lake Lanao, Mindanao, measures, wing, 81; tail, 83; culmen from base, 15; width of bill at middle of nostril, 6.

463. PERICROCOTUS IGNEUS Blyth.

FIERY MINIVET.

Pericrocotus igneus BLYTH, Jour. As. Soc. Bengal (1846), 15, 309; SHARPE, Hand-List (1901), 3, 301; MCGREGOR and WORCESTER, Hand-List (1906), 77.

Palawan (*Steere, Lempriere, Whitehead, Platen, Steere Exp., Bourns & Worcester, Celestino, White*). Western China, Malay Peninsula, southern Tenasserim, Sumatra, Borneo.

Adult male.—Entire head, chin, throat, and upper back glossy blue-black; lower back, rump, tail-coverts, and under parts bright pompeian-orange or fiery red; base of each feather white with a wash of pale yellow between the white base and red tip; thighs black; wings black; primaries, except four outermost, and secondaries crossed by a diagonal band of bright orange-red; on inner webs the band is yellow; inner greater coverts tipped with orange-red and forming part of the wing-patch; four middle rectrices glossy black, the other rectrices black with apical one-third to one-half red. Iris dark brown; bill and feet black. Length, 162; wing, 77; tail, 76; culmen from base, 13; bill from nostril, 9; tarsus, 16.

"*Adult female.*—General color above dull ashy gray, the lower back, rump, and upper tail-coverts fine vermilion; four median tail-feathers black, the remainder vermilion with black bases, gradually increasing in extent toward the inner ones; quills black, with a broad bar of orange near the base of the quills, extending along the outer web of some of the inner primaries; ear-coverts gray; lores, feathers round the eye, cheeks, and under surface of body bright yellow, inclining to orange on the flanks and under tail-coverts; thighs blackish; under wing-coverts and edge of wing yellow. Length, 140; culmen, 13; wing, 70; tail, 70; tarsus, 15." (*Sharpe.*)

"Two males from Palawan average, 154 in length; wing, 72; tail, 74; culmen, 16; tarsus, 16; middle toe with claw, 14. Iris dark; bill, legs, feet, and nails black. Breeding in Palawan in December. Usually keeps to the tops of high trees in the forest but occasionally comes out into the mangrove swamps." (*Bourns and Worcester MS.*)

464. PERICROCOTUS CINEREUS Lafresneye.

ASHY MINIVET.

Pericrocotus cinereus LAFRESNEYE, Rev. Zool. (1845), 8, 94; SHARPE, Cat. Birds Brit. Mus. (1879), 4, 83; Hand-List (1901), 3, 302; WHITEHEAD, Ibis (1899), 103 (migrant); OATES and REID, Cat. Birds' Eggs (1903), 3, 298, pl. 9, fig. 19; MCGREGOR and WORCESTER, Hand-List (1906), 77.

Basilan (*McGregor*); Calayan (*McGregor*); Luzon (*Leclancher, Heriot, Whitehead, McGregor*); Mindoro (*Everett, McGregor*); Palawan (*Lempriere, Whitehead, Bourns & Worcester, White*). China and eastern Siberia; in winter to Pegu, Borneo, and Malay Peninsula.

Male.—Nasal plumes, lores, crown, and nape black; forehead white; cheeks and ear-coverts white, the latter tipped with black; rest of upper parts ashy gray; under parts entirely white; thighs gray; wings blackish brown; secondaries with a narrow white bar across the middle of their length and some of their edges gray; primaries with white patches near middle of inner webs, and some with a white spot on outer web; rectrices black, all but the middle pair with long white tips. Length, about 200; wing, 98; tail, 95; culmen from base, 14; bill from nostril, 9.5; tarsus, 16.

Female.—Similar to the male but crown, nape, and post-ocular area gray like the back; sides of breast mottled or obsoletely barred with gray. Wing, 97; tail, 98; culmen from base, 14; bill from nostril, 9; tarsus, 15.

This plain-colored species appears in the Philippines during migration only and is, as a rule, very rare. At times, however, it is found in considerable numbers.

"We shot a single specimen in Palawan. Length, 190; wing, 96; tail, 100; tarsus, 17; middle toe with claw, 15. Bill, legs, feet, and nails black." (*Bourns and Worcester MS.*)

Genus LALAGE Boie, 1826.

Bill moderate in length and rather slender, as deep as wide at nostril; wing decidedly longer than tail; rectrices moderately broad; tarsus strong. Plumage black, white, and gray; tail black, tipped with white; wing black with a large white patch on secondaries and on greater and median coverts.

Species.

a^1. Forehead black; no white band over eye; larger; length, about 200 mm.
  b^1. Larger; wing, about 120 mm.; tail, 86 .... **melanoleuca** (p. 494)
  b^2. Smaller; wing, about 105 mm.; tail, 82 .... **minor** (p. 495)
a^2. Forehead and a wide band over eye white; length, about 180 mm. **niger** (p. 495)

465. LALAGE MELANOLEUCA (Blyth).

BLACK AND WHITE LALAGE.

Pseudolalage melanoleuca BLYTH, Jour. As. Soc. Bengal (1861), **30**, 97; WALDEN, Trans. Zool. Soc. (1875), **9**, 178, pl. 29, fig. 2.

Lalage melanoleuca SHARPE, Cat. Birds Brit. Mus. (1879), **4**, 91, 471; Hand-List (1901), **3**, 303; WHITEHEAD, Ibis (1899), 103 (habits); MCGREGOR and WORCESTER, Hand-List (1906), 78.

Luzon (*Martens, Heriot, Everett, Whitehead, Steere Exp.*); Mindoro (*Steere Exp., McGregor*); Semirara (*Worcester*).*

Male.—Forehead, crown, sides of head to lower border of eye, hind neck, and mantle black, glossed with green; lower back, rump, and tail-coverts white, the back grayish; entire under parts white; wings and tail black, glossed with green; inner secondaries and greater coverts with wide edges of white; inner median coverts entirely white; quills, except first primary, edged with white on inner web; two outermost pairs of rectrices tipped with white. Length, about 210. A male from Mindoro measures: Wing, 119; tail, 90; culmen from base, 21; bill from nostril, 14; tarsus, 23.

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* No specimen of *L. melanoleuca* was collected on Semirara but "a bird, probably of this species, was seen."

Female.—Above light ashy gray, nearly white on tail-coverts; feathers of head and mantle with dusky shaft-lines; below white; breast obscurely barred with gray; thighs gray with darker shaft-lines; wings and tail as in the male but with less white on median coverts. A female from Mindoro, wing, 112; tail, 85; culmen from base, 21; bill from nostril, 14.5; tarsus, 23.

466. **LALAGE MINOR** (Steere).

STEERE'S LALAGE.

Pseudolalage minor STEERE, List Birds & Mams. Steere Exped. (1890), 15.
Lalage minor WHITEHEAD, Ibis (1899), 103; SHARPE, Hand-List (1901), 3, 303; McGREGOR and WORCESTER, Hand-List (1906), 78.

Leyte (*Whitehead*); Mindanao (*Steere Exp., Celestino*); Samar (*Bourns & Worcester, Whitehead*).

Male.—In color exactly like the male of *L. melanoleuca*, but distinguished by its smaller size. Length, about 200. A male from northern Mindanao measures: Wing, 104; tail, 81; culmen from base, 21; bill from nostril, 15; tarsus, 20.

Female.—Differs from the female of *L. melanoleuca* in having the chin, throat, and breast plumbeous gray with somewhat obscure gray bars.

"Steere's lalage is not very common; a pair shot in Samar had been feeding on fruit and insects. Iris dark brown; legs, feet, and nails black; upper mandible black, lower nearly so. The male measures, 197 in length; wing, 107; tail, 81; culmen, 25; tarsus, 22; middle toe with claw, 21. A female, length, 203; wing, 106; tail, 82; culmen, 26; tarsus, 24; middle toe with claw, 18." (*Bourns and Worcester MS.*)

467. **LALAGE NIGER** (Forster).

PIED LALAGE.

Turdus dominicus (not of Linnæus, 1766) P. L. S. MÜLLER, Natursyst. Suppl. (1776), 145.
Turdus niger FORSTER, Ind. Zool. (1781), 41.
Turdus terat BODDAERT, Tabl. Pl. Enl. (1783), pl. 17.
Lalage terat SHARPE, Cat. Birds Brit. Mus. (1879), 4, 95; Hand-List (1901), 3, 303; WHITEHEAD, Ibis (1899), 104; OATES and REID, Cat. Birds' Eggs (1903), 3, 300.
Lalage niger McGREGOR and WORCESTER, Hand-List (1906), 78.

Ca-hu-raó hu-raó, Ticao; *sa-lac-sá-can*, Cagayancillo; *bu-ga-ung-ón*, Siquijor; *ibong-pá-re*, Manila.

Bantayan (*McGregor*); Banton (*Celestino*); Basilan (*Everett, Steere Exp., Bourns & Worcester, McGregor*); Bohol (*Everett, McGregor*); Cagayancillo (*McGregor*); Cagayan Sulu (*Guillemard, McGregor*); Calamianes (*Bourns & Worcester*); Caluya (*Porter*); Catanduanes (*Whitehead*); Cebu (*Meyer, Steere Exp., Bourns & Worcester, McGregor*); Cuyo (*McGregor*); Guimaras (*Meyer, Steere Exp., Bourns & Worcester*); Leyte (*Everett*); Lubang (*McGregor*); Luzon (*Everett, Steere Exp., Bourns & Worcester, Whitehead, McGregor*); Marinduque (*Steere Exp.*); Masbate (*McGregor*); Mindanao (*Steere, Steere Exp., Bourns & Worcester, Celestino*); Mindoro (*Steere Exp., Bourns & Worcester, McGregor*); Negros (*Everett, Steere Exp., Bourns & Worcester, Whitehead, Keay*); Palawan (*Bourns & Worcester*); Panay (*Murray, Steere, Steere Exp., Bourns & Worcester*); Romblon (*Bourns & Worcester*); Sibay (*McGregor & Worcester*); Sibuyan (*Bourns & Worcester, McGregor*); Siquijor (*Bourns & Worcester, Celestino*); Sulu (*Guillemard, Bourns & Worcester*); Tablas (*Bourns & Worcester*); Ticao (*McGregor*). Malay Peninsula, Nicobar Islands, Sumatra, Java, Borneo.

Male.—Very similar to *L. melanoleuca,* but much smaller and with a broad white line from forehead over eye to nape. Length, about 180; other measurements from a male taken in Bohol are: Wing, 92; tail, 73; culmen from base, 18; bill from nostril, 11; tarsus, 19.

The *immature male* resembles the adult female.

Female.—Differs from the male in having the upper surface bluish gray with blackish shaft-lines, the white band over eye less distinct, and the breast, sides, and flanks closely barred with narrow gray lines. A female from Bohol measures: Wing, 92; tail, 72; culmen from base, 17; bill from nostril, 12; tarsus, 20.

Nestling.—Two nestlings from Banton, June 30, 1905, have the feathers of upper parts dark ashy brown with wide tips of light earthy buff; under parts white with spots and longitudinal lines of blackish brown, the wings are similar to those of the adult, but the white areas are washed with buff.

The pied lalage is widely distributed and abundant; the other two Philippine species are comparatively rare.

Family **PYCNONOTIDÆ.**

Bill slender and compressed; culmen gently curved and having a decided keel; a notch near the tip of upper mandible and, in some genera, another notch near tip of lower mandible; nostrils pierced in the anterior part of a membrane the base of which may be covered with short plumes, but the nostrils always exposed except in *Irena;* wing longer than tail; first primary little more than one-half the second, the latter shorter than third; fourth and fifth usually forming the tip of the wing; tail square, or slightly rounded, rarely decidedly graduate; tarsus short, nearly always less than culmen from base, and seldom greater than middle toe with claw. In some genera there are a number of hairs springing from the nape, but these are not greatly developed, except in *Irena* and *Trichophorus.*

Genera.

- *a*¹. A tuft of long white silky feathers on each side of lower breast; primaries exceeding the secondaries by less than one-half the tarsus; colors yellow and black .... **Ægithina** (p. 497)
- *a*². No tuft of long silky feathers on side of breast; primaries exceeding the secondaries by more than one-half the tarsus.
  - *b*¹. Primaries exceeding the secondaries by less than the length of tarsus.
    - *c*¹. Tail-coverts very long, nearly two-thirds as long as the tail; colors black and yellow, tail tipped with yellow .... **Microtarsus** (p. 513)
    - *c*². Tail-coverts shorter, equal to less than two-thirds of tail.
      - *d*¹. Hairs on nape short or wanting; if present, less than the tarsus in length.
        - *e*¹. Eye not surrounded by a wattle; tail without a light tip.
          - *f*¹. Head uncrested; plumage mostly bright green.... **Chloropsis** (p. 498)
          - *f*². Head slightly crested; culmen from base less than tarsus; with no green in the plumage .... **Pycnonotus** (p. 515)
        - *e*². Eye surrounded by a narrow wattle; tail with a wide white tip. **Poliolophus** (p. 512)
      - *d*². Hairs on nape very long, their exposed portions longer than one-half the tarsus .... **Trichophorus** (p. 514)
  - *b*². Primaries exceeding the secondaries by more than length of tarsus.
    - *c*¹. Feathers of crown and nape rounded; hairs on nape well developed, extending beyond the feathers for more than two-thirds the length of bill from nostril; plumage entirely blue and black .... **Irena** (p. 499)
    - *c*². Feathers of crown and nape pointed; hairs on nape usually shorter; plumage usually brown or gray, mottled with whitish; plumage rarely yellow.
      - *d*¹. Rictal bristles less than one-half the tarsus in length. **Hypsipetes** (p. 502)
      - *d*². Rictal bristles more than one-half the tarsus in length.......... **Iole** (p. 504)

Genus ÆGITHINA Vieillot, 1816.

Wings short and curved to the body; secondaries nearly as long as primaries; a large tuft of long, white, silky feathers on each side of lower breast; tarsus slightly greater than culmen from base; lower parts bright yellow; wings black, barred with white.

468. ÆGITHINA VIRIDIS (Bonaparte).

BLACK-WINGED IORA.

Jora viridis Bonaparte, Consp. Genera Avium (1850), 1, 397.

Ægithina viridis Sharpe, Cat. Birds Brit. Mus. (1881), 6, 11; Hand-List (1901), 3, 306; Oates and Reid, Cat. Birds' Eggs (1903), 3, 302; McGregor and Worcester, Hand-List (1906), 78.

Palawan (*Steere, Everett, Whitehead, Platen, Steere Exp., Bourns & Worcester, McGregor, Celestino, White*). Sumatra and Borneo.

Male.—Forehead, lores, supercilia, sides of face, and under parts golden yellow, becoming slightly paler on abdomen and tail-coverts; above yellowish green; upper tail-coverts, wings, and tail black; outer webs of inner primaries narrowly edged with pale yellow; inner webs, except that of first primary, broadly edged with white; secondaries edged with white on both webs; lesser wing-coverts black; median coverts with wide white tips forming a bar; greater coverts edged with white near their tips forming a second bar. A male from Palawan measures: Wing, 66; tail, 51; culmen from base, 18; bill from nostril, 12; tarsus, 20.

Female.—Above similar to the male, but forehead more greenish, and tail and coverts green like the back; under parts lighter yellow than in the male; wings blackish and the tail-markings more or less washed with yellowish green. A female measures: Wing, 62; tail, 51; culmen from base, 17.5; tarsus, 18.

"Very common in Palawan but not found by us in the Calamianes. Five males average: Length, 146; wing, 63; tail, 50; culmen, 19; tarsus, 18; middle toe with claw, 16. Four females, length, 138; wing, 60; tail, 52; culmen, 18; tarsus, 18; middle toe with claw, 16. Iris light yellow to grayish white; legs and feet slate-blue; nails darker than feet; upper mandible black, gray along gape; lower mandible grayish white." (*Bourns and Worcester MS.*)

Genus CHLOROPSIS Jardine and Selby, 1826.

A distinct notch near the tip of each mandible; tarsus slightly less than culmen from base; difference between the length of primaries and of secondaries equal to about two-thirds of tarsus. Plumage nearly all bright grass-green, the difference between the sexes very slight.

Species.

*a*¹. Chin and throat bright yellow.. **palawanensis** (p. 498)
*a*². Chin and throat light green, the chin slightly washed with yellow. **flavipennis** (p. 499)

469. CHLOROPSIS PALAWANENSIS (Sharpe).

PALAWAN LEAFBIRD.

Phyllornis palawanensis SHARPE, Trans. Linn. Soc. 2d. ser. Zool. (1877), **1**, 333, figs. 1 and 2.

Chloropsis palawanensis SHARPE, Cat. Birds Brit. Mus. (1881), **6**, 33; Hand-List (1901), **3**, 308; MCGREGOR and WORCESTER, Hand-List (1906), 78.

Balabac (*Everett*); Calamianes (*Bourns & Worcester*); Palawan (*Steere, Whitehead, Platen, Steere Exp., Bourns & Worcester, Celestino, White*).

Male.—Grass-green, much darker above than below; lores and a small patch at base of lower mandible light blue, behind the latter a moustachial line of lilac, above this and below eye a band of golden yellow; eye surrounded by a circle of purple feathers; chin and throat golden yellow; lesser wing-coverts on bend of wing bluish purple; remainder of secondary-coverts and secondaries edged with green; alula and primary-coverts blue, slightly washed with purple; primaries black, edged with light blue on outer webs and with white on inner webs; rectrices, below dark gray; above blue, washed with green, shafts black. A male from Palawan measures: Wing, 89; tail, 72; culmen from base, 21; bill from nostril, 14.5; tarsus, 15.

Female.—Scarcely differs in color from the male, but the moustachial streak dark purplish blue. A female measures: Wing, 82; tail, 65; culmen from base, 22; tarsus, 17.

"Common in Palawan and in the Calamianes, but difficult to see on account of its color. Found in the forests, second growth, and mangrove swamps. Seven males average: Length, 189; wing, 90; tail, 67; tarsus, 18; middle toe with claw, 17; culmen, 23. Four females, length, 182; wing, 83; tail, 63; culmen, 23; tarsus, 19; middle toe with claw, 18. Iris brown; legs and feet slate-gray; bill black." (*Bourns and Worcester MS.*)

470. CHLOROPSIS FLAVIPENNIS (Tweeddale).

YELLOW-QUILLED LEAFBIRD.

Phyllornis flavipennis TWEEDDALE, Proc. Zool. Soc. (1877), 761; pl. 77, fig. 1.
Chloropsis flavipennis SHARPE, Cat. Birds Brit. Mus. (1881), **6**, 34; Hand-List (1901), **3**, 308; MCGREGOR and WORCESTER, Hand-List (1906), 78.

Cebu (*Everett, Bourns & Worcester, McGregor*); Mindanao (*Platen, Celestino*).

Male and female.—Nearly the entire plumage leaf- or grass-green, much darker above than below; lores, ring about eye, ear-coverts, and chin washed with light yellow; outer webs of some primaries and inner webs of all the remiges and rectrices, edged with chamois-yellow; lower thighs chamois-yellow; shafts of flight-feathers black. Three males from Cebu measure: Wing, 91 to 96; tail, 74 to 76; bill from nostril, 16 to 17. Three females, wing, 89 to 91; tail, 72 to 76; bill from nostril, 15 to 16.

This species, which is very distinct from *C. palawanensis,* is rare in the only islands where it has been found.

"Found only in the forest and breeding in June. Nine males average: Length, 200; wing, 92; tail, 75; culmen, 25; tarsus, 18; middle toe with claw, 20. Four females, length, 183; wing, 86; tail, 70; culmen, 24; tarsus, 17; middle toe with claw, 20. Iris dark brown to black; upper mandible almost black, lower drab." (*Bourns and Worcester MS.*)

Genus IRENA Horsfield, 1821.

Nuchal hairs well developed, their exposed portions equal to about two-thirds the length of bill from nostril; nostrils hidden by short close-set feathers; a notch near the tip of each mandible; primaries longer than secondaries by much more than tarsus; tarsus less than bill from nostril; tail slightly rounded. Colors blue and black. In the thin and tender skin and hidden nostrils this genus shows some affinity to the *Campophagidæ;* the well-developed nuchal hairs and short tarsus indicate a close relationship to the bulbuls.

Species.

a^1. Mantle and back blue.
  b^1. Chin and throat black.
    c^1. Crown and nape cobalt; mantle and back navy-blue.... **cyanogastra** (p. 500)
    c^2. Crown, mantle, and back bright turquoise-blue (male). **tweeddali** (p. 502).
  b^2. Chin and throat and nearly the entire plumage dull verditer-blue (female). **tweeddali** (p. 502)
a^2. Mantle and back velvety black.. { **melanochlamys** (p. 501) / **ellæ** (p. 500)

471. IRENA CYANOGASTRA Vigors.

LUZON FAIRY BLUEBIRD.

Irena cyanogastra Vigors, Proc. Zool. Soc. (1831), 97; Sharpe, Cat. Birds Brit. Mus. (1877), 3, 266; Grant, Ibis (1896), 116; Whitehead, Ibis (1899), 216 (habits).

Irena cyanogaster Sharpe, Hand-List (1901), 3, 308; McGregor and Worcester, Hand-List (1906), 79.

Luzon (*Meyer, Möllendorff, Steere Exp., Whitehead, McGregor, Celestino*).

Male.—Forehead, lores, a wide band over eye, entire sides of head and neck, chin, throat, and fore breast velvety black; rest of under parts deep blue; tail-coverts tipped with cobalt and the black bases of feathers showing through the blue to some extent; crown and nape bright cobalt; mantle, back, and rump deep blue, the black bases showing through to some extent as on the under parts; upper tail-coverts tipped with cobalt; wings black; lesser coverts tipped with dark blue; median and greater coverts with wide tips of cobalt, forming two bands; alula-feathers and primary-coverts narrowly edged with dark blue; inner secondaries broadly edged with cobalt; rectrices black below; above, outermost pair all black, the middle pair all blue, the others blue on outer webs. Bill, legs, and nails black. Length, about 260; wing, 135; tail, 112; culmen from base, 30; bill from nostril, 21; tarsus, 21.

Female.—Differs from the male in having the black on head and throat duller and extending for a less distance on the breast; blue of under parts slightly lighter. Wing, 135; tail, 113; culmen from base, 27; bill from nostril, 19; tarsus, 18.

472. IRENA ELLÆ Steere.

ELLA'S FAIRY BLUEBIRD.

Irena ellæ Steere, List Birds & Mams. Steere Exped. (1890), 18; Ibis (1891), 313 (fig.), pl. 8; Sharpe, Hand-List (1901), 3, 309; Whitehead, Ibis (1899), 216 (habits); McGregor and Worcester, Hand-List (1906), 79.

Leyte (*Steere Exp.*); Samar (*Steere Exp., Bourns & Worcester, Whitehead*).

"*Adult male.*—Crown of head and nape deep cobalt-blue as in *I. cyanogastra;* sides of neck, back, and scapulars velvety black; lower back washed with cobalt, this becoming rich cobalt on upper tail-coverts; tail black, washed with deep cobalt; wings marked with cobalt much as in *cyanogastra;* under surface deep velvety black, feathers of abdomen slightly washed with blue; under tail-coverts deep cobalt.

"*Adult female.*—Chin and throat velvety black; breast, abdomen, and flanks purplish blue. Size that of *cyanogastra. I. ellæ* can be readily distinguished from *I. cyanogastra,* its nearest ally, by its black back." (*Steere*).

"This fine *Irena* was discovered by Bourns the first time that we succeeded in reaching the woods back of the town of Catbalogan in Samar, in 1888 Three males average, 252 in length; wing, 125; tail, 102; culmen, 31; tarsus, 17; middle toe with claw, 23. A female, length, 257; wing, 123; tail, 103; culmen, 31; tarsus, 16; middle toe with claw, 23. Bill, legs, feet, and nails black; iris red." (*Bourns and Worcester MS.*)

473. IRENA MELANOCHLAMYS Sharpe.

BLACK-MANTLED FAIRY BLUEBIRD.

Irena melanochlamys SHARPE, Cat. Birds Brit. Mus. (1877), 3, 266; Trans. Linn. Soc. 2d ser. Zool. (1877), 1, 334, pl. 51, fig. 2; Hand-List (1901), 3, 309; MCGREGOR and WORCESTER, Hand-List (1906), 79.

Basilan (*Steere, Everett, Steere Exp., Bourns & Worcester, McGregor*); Mindanao (*Bourns & Worcester*).

Adult.—Very similar to *Irena cyanogastra,* but the upper back and mantle black instead of deep blue. Iris cherry red; bill, legs, and nails black. Length, about 230. A male from Basilan measures: Wing, 121; tail, 102; culmen from base, 27; bill from nostril, 19; tarsus, 18. A female measures: Wing, 118; tail, 98; culmen from base, 28; tarsus, 20.

"This fairy bluebird is a strictly deep woods form and a very fine singer; it is rather shy, but can readily be procured, as it never remains silent for any length of time. It is often difficult to distinguish from *Dicrurus striatus* when seen at a little distance, unless its tail is in plain view. All of the Philippine *Irenidæ* are difficult to collect in good condition. They have very thin skins and loose feathers, and frequently ruin themselves in falling. They all feed on fruit. Ten males from Basilan average: Length, 236; wing, 120; tail, 98; culmen, 30; tarsus, 18; middle toe with claw, 22. Eleven females, length, 229; wing, 116; tail, 96; culmen, 30; tarsus, 17; middle toe with claw, 22." (*Bourns and Worcester MS.*)

474. **IRENA TWEEDDALI** Sharpe.

TWEEDDALE'S FAIRY BLUEBIRD.

Irena tweeddalii Sharpe, Cat. Birds Brit. Mus. (1877), 3, 268; Trans. Linn. Soc. 2d. ser. Zool. (1877), 1, 333, pl. 51, fig. 1; McGregor and Worcester, Hand-List (1906), 79.

Irena tweeddalei Sharpe, Hand-List (1901), 3, 309.

Balabac (?*); Calamianes (*Bourns & Worcester*); Palawan (*Steere, Lempriere, Whitehead, Platen, Steere Exp., Bourns & Worcester, Celestino, White*).

Male.—Crown, nape, hind neck, entire back, rump, upper and under tail-coverts, lesser and median wing-coverts, and tips of inner greater coverts light turquoise-blue; rest of plumage, including forehead, lores, a wide line over eye, and entire sides of head and neck deep black. Length, 240; wing, 127; tail, 99; culmen from base, 26; bill from nostril, 19; tarsus, 16.

Female.—Very different from the male, being dull verditer-blue; feathers of rump and upper and under tail-coverts tipped with brighter blue; primaries dark brown; secondaries and rectrices dark brown, their exposed edges washed with verditer-blue. Wing, 120; tail, 99; culmen from base, 26; bill from nostril, 19; tarsus, 18.

"Tweeddale's fairy bluebird was fairly common about fruit trees in the forest and was found abundantly on Mount Pulgar at an elevation of about 750 meters. Five males from Palawan average: Length, 245; wing, 123; tail, 95; culmen, 31; tarsus, 17; middle toe with claw, 23. Four females, length, 243; wing, 122; tail, 92; culmen, 31; tarsus, 17; middle toe with claw, 24. Males and females from the Calamianes average slightly less in length. Iris red; bill, legs, feet, and nails black." (*Bourns and Worcester MS.*)

Genus HYPSIPETES Vigors, 1831.

Longest rictal bristles about one-half the length of tarsus; nuchal hairs moderate in length; bill slender and compressed; a notch near tip of upper mandible, none in lower mandible; tarsus much less than culmen from base; difference between length of primaries and secondaries greater than length of tarsus; tail slightly rounded; plumage brown and gray, under parts sparsely spotted with white.

Species.

a^1. Smaller; bill and tail shorter; flanks more rufescent or fulvescent.
  b^1. Smaller; forehead cinereous .... **fugensis** (p. 503)
  b^2. Larger .... **batanensis** (p. 503)
a^2. Larger; bill and tail longer; flanks grayer.......... **camiguinensis** (p. 504)

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[*] Cf. Sharpe, Hand-List (1901), 3, 309. I find no record of this *Irena* having been taken in Balabac.

475. **HYPSIPETES FUGENSIS** Grant.

FUGA RED-EARED BULBUL.

Hypsipetes fugensis GRANT, Bull. Brit. Orn. Club (1895), 5, 2; Ibis (1896), 113; WHITEHEAD, Ibis (1899), 214; SHARPE, Hand-List (1901), 3, 310; MCGREGOR, Bull. Philippine Mus. (1904), 4, 31; MCGREGOR and WORCESTER, Hand-List (1906), 79.

Sa-mot', Calayan.

Calayan (*McGregor*); Fuga (*Whitehead, McGregor, Mearns*).

Male and female.—Top of head and crest dark brown, the feathers edged with slate-gray; back, rump, and tail-coverts warm brown or light seal-brown, the feathers edged with olive-gray; wings and tail dark brown; rectrices edged with olive-gray; chin, fore part of throat, and cheeks hoary gray; a band of dark reddish brown across ear-coverts and lower throat, many of the feathers of throat with white spots on the tips of the shafts; rest of under parts ashy brown, becoming fulvous on flanks and thighs; feathers on median part of breast tipped with white; middle of abdomen white. Iris reddish brown; bill, legs, and nails dark brown. Five males from Fuga measure: Wing, 123 to 126; tail, 119 to 124; culmen from base, 27 to 29; bill from nostril, 16.5 to 18; tarsus, 19 to 23.

"*Adult male and female.*—Most nearly allied to *H. squamiceps* and *H. pryeri*, having the chestnut ear-coverts united by a band of the same color extending across the throat, but the top of the head, which is almost devoid of a crest, and the neck are brown, like the back, instead of dark slate-gray; and the white tips to the feathers of the breast and belly are almost entirely absent, or only faintly indicated along the middle line of the under parts. Length, 267; culmen, 29; wing, 123; tail, 117; tarsus, 21.5." (*Grant.*)

476. **HYPSIPETES BATANENSIS** Mearns.

BATAN RED-EARED BULBUL.

Hypsipetes batanensis MEARNS, Phil. Jour. Sci. (1907), 2, sec. A, 357; MCGREGOR, Ibid, 342.

Pi-uc', Batan.

Babuyan Claro (*McGregor*); Batan (*Mearns, McGregor*).

Diagnosis.—"Exactly like topotypes of *Hypsipetes fugensis* Grant, but larger, and with the forehead rufescent instead of cinereous. Measurements.—Type (skin of adult male)—Length, 262; wing, 130; tail, 127; culmen (chord), 28; bill from anterior margin of nostril, 20; tarsus, 26; middle toe with claw, about 27. Average of three adult males including the type: Length, 264; wing, 128; tail, 127; culmen (chord), 28; bill from anterior margin of nostril, 26; middle toe with claw, about 27. Adult female: Length, 245; wing, 116; tail, 112; culmen (chord), 25;

bill from anterior margin of nostril, 17.5; tarsus, 25; middle toe with claw, about 25.5." (*Mearns.*)

Five males measure as follows: Wing, 124 to 129; tail, 116 to 123; culmen from base, 30 to 32; bill from nostril, 18 to 19; tarsus, 22 to 25.

Other than the size there appears to me to be no appreciable difference between *H. fugensis* and *H. batanensis.* The Batan red-eared bulbul is very abundant in Batan Island where it was found breeding in May and June. The eggs are salmon-pink, spotted with shades of umber-brown. Six eggs measure from 30.2 to 32.7 mm. in length and from 20 to 22 mm. in width.

477. HYPSIPETES CAMIGUINENSIS McGregor.

CAMIGUIN RED-EARED BULBUL.

Hypsipetes camiguinensis McGregor, Phil. Jour. Sci. (1907), 2, sec. A, 347.

Camiguin N. (*Worcester, McGregor*).

Diagnosis.—Similar to *H. fugensis* and to *H. batanensis* but larger; bill and tail longer; flanks less rufescent. Male, type: Length in flesh, 295; wing, 136; tail, 124; culmen from base, 33; bill from anterior margin of nostril, 21; tarsus, 25.

The specimens of *Hypsipetes* obtained in Camiguin Island are in such poor condition that it is impossible to give color characters, but I believe adults in good plumage will be found to differ considerably from both *H. fugensis* and *H. batanensis.*

Genus IOLE Blyth, 1844.

This genus differs from *Hypsipetes* in having longer rictal bristles, the longest being decidedly more than one-half as long as the tarsus, and in having the nuchal hairs more strongly developed. The three yellow plumaged species, *Iole striaticeps, everetti,* and *haynaldi,* approach *Criniger* (=*Trichophorus*) both in color and in the development of nuchal hairs, but in the latter genus the bill is relatively shorter and the culmen is more curved.

Species.

- a^1. Under parts bright yellow or strongly tinged with yellow; nuchal hairs longer.
  - b^1. Above olive-brown with whitish shaft-streaks; below ashy white with a strong tinge of yellow........ **striaticeps** (p. 505)
  - b^2. Above olive-yellow with darker shaft-streaks; under parts mostly bright yellow.
    - c^1. Larger; above brighter and clearer olive-yellow; under parts brighter. **everetti** (p. 506)
    - c^2. Smaller; above duller olive-yellow; under parts not so bright. **haynaldi** (p. 506)

- a^2. Under and upper parts neither yellow nor tinged with yellow; general color brown or gray.
  - b^1. Chin and throat reddish brown or gray, narrowly streaked with white or without streaks; smaller, culmen from base usually less than 28 mm.
    - c^1. No white shaft-lines on chin and throat.......... **rufigularis** (p. 507)
    - c^2. White shaft-lines present on chin and throat.
      - d^1. Chin and throat rufous-brown; shaft-lines wider.
        - e^1. Smaller; chin and throat slightly darker.......... **gularis** (p. 507)
        - e^2. Larger; chin and throat slightly paler.......... **guimarasensis** (p. 508)
      - d^2. Chin and throat pale rufescent brown; shaft-lines much narrower and less conspicuous .... **mindorensis** (p. 509)
  - b^2. Chin and throat gray with wide streaks of white, or chin nearly all white; larger, culmen from base usually more than 30 mm.
    - c^1. Top of head uniform seal-brown without lighter margins to the feathers; wing of male, about 135 mm.......... **siquijorensis** (p. 510)
    - c^2. Top of head lighter brown or dull olive-brown; feathers on forehead tipped with slate-gray; wing shorter.
      - d^1. Top of head lighter; feathers on nape tipped with ashy or slate-gray; wing, about 125 mm.; tail, 115.......... **cinereiceps** (p. 511)
      - d^2. Top of head darker; feathers on nape with no gray tips; wing, about 120 mm.; tail, 105.......... **monticola** (p. 511)

478. IOLE STRIATICEPS Sharpe.

PALAWAN BULBUL.

Iole striaticeps SHARPE, Ibis (1888), 200; Hand-List (1901), 3, 313; MCGREGOR and WORCESTER, Hand-List (1906), 79.

Palawan (*Whitehead*).

"*Adult female.*—General color above olive-brown, with narrow whitish shaft-streaks to the feathers of the mantle and back; the lower back and rump uniform, the feathers of the latter very loose and fluffy and with pale tips; lesser wing-coverts brown, with a wash of olive; alula and primary-coverts dusky brown, with a reddish tinge and washed with olive externally; quills dark brown, externally pale olive-brown, rather more rufous toward the base of the secondaries; upper tail-coverts and tail-feathers light reddish brown with a slight edging of olive; crown of head brown, slightly contrasting with the back, all the feathers with narrow ashy white shaft-streaks; lores white, with a yellowish tinge; feathers below the eye and ear-coverts light brown, washed with yellow and having narrow whitish shaft-streaks; cheeks and under surface of body ashy white, with a strong tinge of yellow, the breast, abdomen, and under tail-coverts clearer yellow; sides of body and flanks washed with olive-brown; thighs pale yellow; under wing-coverts and axillars pale yellow; quills below dusky brown, yellowish along the edge of the inner web. Length, 168; culmen, 18; wing, 81; tail, 70; tarsus, 19." (*Sharpe.*)

479. **IOLE EVERETTI** (Tweeddale).

EVERETT'S YELLOW BULBUL.

Criniger everetti TWEEDDALE, Ann. & Mag. Nat. Hist. (1877), **20**, 535; Proc. Zool. Soc. (1877), 827, pl. 84.
Iole everetti SHARPE, Cat. Birds Brit. Mus. (1881), **6**, 57; Hand-List (1901), **3**, 313; WHITEHEAD, Ibis (1899), 215; MCGREGOR and WORCESTER, Hand-List (1906), 79.

Dinagat (*Everett*); Leyte (*Steere Exp., Whitehead*); Mindanao (*Everett, Goodfellow, Celestino*); Panaon (*Everett*); Samar (*Steere Exp., Bourns & Worcester, Whitehead*).

Adult male.—Above bright olive-yellow; primaries, secondaries, and rectrices mostly dark brown, their exposed webs olive-yellow; shafts of the rectrices light yellow below; sides of face faintly washed with brown; feathers on jaw with black shafts; chin yellow, the shafts of the feathers black and extending beyond the webs; throat and fore breast light rufescent brown, washed with yellow; rest of under parts yellow; sides, flanks, and upper thighs darker; middle of abdomen, lower thighs, crissum, axillars, and wing-lining light egg-yellow. Length of a male, 198; wing, 116; tail, 105; culmen from base, 28; bill from nostril, 19; tarsus, 20. The female is similar to the male.

"Everett's yellow bulbul is a deep-woods bird, and a hill bird as well. In Samar *I. philippinensis* [=*gularis*] is found about the open fields and in the forests of the lowlands, but as soon as one goes a few hundred feet up on the hills *I. everetti* takes its place. Three males average, 248 in length; wing, 112; tail, 96; tarsus, 20.5; middle toe with claw, 24; culmen, 27. A female measures, 229 in length; wing, 96; tail, 89; culmen, 27; tarsus, 20; middle toe with claw, 22. Iris chocolate-brown; legs, feet, and nails leaden; upper mandible nearly black, lower gray." (*Bourns and Worcester MS.*)

480. **IOLE HAYNALDI** (Blasius).

HAYNALD'S YELLOW BULBUL.

Criniger haynaldi BLASIUS, Jour. für Orn. (1890), 143.
Iole haynaldi SHARPE, Ibis (1894), 253; Hand-List (1901), **3**, 313; MCGREGOR and WORCESTER, Hand-List (1906), 79.

Bongao (*Everett*); Sibutu (*Everett*); Sulu (*Platen, Bourns & Worcester*); Tawi Tawi (*Bourns & Worcester*).

Adult.—Similar to *Iole everetti*, but smaller and the upper parts darker and browner; wings much darker, their exposed webs olive-brown; edges of rectrices darker; under parts lighter yellow; axillars and wing-lining pale yellow. A male measures: Wing, 109; tail, 100; culmen from base, 29; bill from nostril, 18; tarsus, 20. A female, wing, 104; tail, 100; culmen from base, 29; bill from nostril, 18; tarsus, 21.

"Haynald's yellow bulbul is extremely abundant in Sulu and Tawi Tawi. It is a woods bird which does not seem to come out into the open. Fifteen males average: Length, 240; wing, 108; tail, 99; culmen, 27;

tarsus, 19; middle toe with claw, 23. Twelve females average, length, 232; wing, 106; tail, 98; culmen, 27; tarsus, 19; middle toe with claw, 22. Iris reddish brown; legs, feet, and nails light brown to slaty brown; upper mandible black, lower leaden gray." (*Bourns and Worcester MS.*)

481. IOLE RUFIGULARIS (Sharpe).

RUFOUS-THROATED BULBUL.

Hypsipetes rufigularis SHARPE, Trans. Linn. Soc. 2d. ser. Zool. (1877), **1**, 335.

Iole rufigularis SHARPE, Cat. Birds Brit. Mus. (1881), **6**, 57, pl. 3; Hand-List (1901), **3**, 313; MCGREGOR and WORCESTER, Hand-List (1906), 79.

Basilan (*Steere, Steere Exp., Bourns & Worcester*); Mindanao (*Murray, Everett, Steere Exp.*).

Adult.—Forehead, crown, and occiput dark brown, shafts of the feathers blackish and their edges slate; rest of upper parts lighter brown, the feathers with olivaceous edges and ashy or slate-gray tips; wings dark brown, the outer webs of the feathers lighter and narrowly edged with olivaceous; tail similar; lores and sides of head dull brown; chin, throat, and fore breast tawny or light tan-brown, darker on breast; sides of breast washed with olive; shafts of chin-feathers black and produced beyond the webs; shafts of breast-feathers a trifle lighter than their webs; rest of the under parts white, the feathers edged with pale yellow, producing a streaked appearance; flanks more or less washed with brown; axillars and under wing-coverts white, washed with pale yellow. The sexes are similar in colors. A male from Basilan measures: Length, 255; wing, 123; tail, 105; culmen from base, 29; bill from nostril, 17; tarsus, 21. A female from Basilan, wing, 117; tail, 114; culmen from base, 25; bill from nostril, 16; tarsus, 21.

"The rufous-throated bulbul is common in Mindanao and Basilan; it is found along edges of forest, in second growth, and in guava bushes. Two males average: Length, 238; wing, 111; tail, 98; culmen, 26; tarsus, 19; middle toe with claw, 23. A female, length, 241; wing, 106; tail, 95; tarsus, 20; middle toe with claw, 22. Iris dark brown; legs and feet brown to nearly black; bill black." (*Bourns and Worcester MS.*)

482. IOLE GULARIS (Pucheran).

PHILIPPINE BULBUL.

Turdus philippensis GMELIN, Syst. Nat. (1788), **1**, 814 (not of Müller, 1776, nor of Boddaert, 1783).

Philedon gularis "Cuvier," PUCHERAN, Arch. du Mus. d'Hist. Nat. [Paris] (1855), **7**, 344, pl. 18.

Iole philippensis SHARPE, Cat. Birds Brit Mus. (1881), **6**, 58; Hand-List (1901), **3**, 313 (part); GRANT and WHITEHEAD, Ibis (1898), 238 (eggs); WHITEHEAD, Ibis (1899), 215; OATES and REID, Cat. Birds' Eggs (1903), **3**, 307; MCGREGOR and WORCESTER, Hand-List (1906), 79.

Tug-bi-á, Bohol; *pa-nu-cá*, Lubang; *tam-si*, Manila.

Banton (*Celestino*); Bohol (*Steere Exp., McGregor*); Cebu (*Meyer, Murray, Everett, Steere Exp., Bourns & Worcester, McGregor*); Leyte (*Everett, Steere Exp.*); Lubang (*McGregor*); Luzon (*Kittlitz, Meyer, Möllendorff, Everett, Steere Exp., Bourns & Worcester, Whitehead, McGregor*); Marinduque (*Steere Exp.*); Mindanao (*Everett, Koch & Schadenberg, Goodfellow*); Panaon (*Everett*); Samar (*Steere Exp., Bourns & Worcester*).

Adult.—Similar to *Iole rufigularis,* but smaller, and easily recognized by the more rufescent chin and throat and the very distinct white, or whitish, shaft-lines on these parts. The sexes are similar in colors. Extreme and average measurements of ten males from Mariveles, Bataan Province, Luzon, are as follows: Wing, 96 to 104 (100); tail, 88 to 90 (89); exposed culmen, 20 to 22 (20.5); bill from nostril, 15 to 16 (15.5); tarsus, 18 to 21 (20). Ten females from the same locality measure: Wing, 91 to 100 (94); tail, 81 to 89 (85); exposed culmen, 19 to 22 (19.5); bill from nostril, 15 to 16 (15.5); tarsus, 19 to 22 (20).

"Found about fruit trees in the forest, but more abundant in the open country, so far as our observation goes. Masbate birds are larger than those from the other islands, as the following measurements will show.

"Six males from Masbate average: Length, 229; wing, 106; tail, 92; culmen, 46; tarsus, 19; middle toe with claw, 23. Six females, length, 226; wing, 99; tail, 88; culmen, 27; tarsus, 18.5; middle toe with claw, 21. [The Masbate bulbul is *I. guimarasensis*].

"Four males from Cebu, length, 219; wing, 100; tail, 90; culmen, 51; tarsus, 18; middle toe with claw, 21. Four females from the same place, length, 205; wing, 94; tail, 83; culmen, 25; tarsus, 18; middle toe with claw, 21.

"Iris chocolate-brown; legs, feet, and nails dark brown; bill black, lower mandible sometimes dark brown." (*Bourns and Worcester MS.*)

Two eggs of the Philippine bulbul collected by Whitehead at Cape Engaño, Luzon, in May, 1895, are described thus: "Shape ovate. Ground-color pure white, thickly speckled all over with brown, lake, and pale violet under-markings. Measurements 29 mm. by 20 mm. The nest which is constructed of fine roots, like that of other bulbuls, was placed in a bush in the vicinity of the forest." (*Grant and Whitehead.*)

483. **IOLE GUIMARASENSIS** Steere.

STEERE'S BULBUL.

Iole guimarasensis STEERE, List Birds & Mams. Steere Exped. (1890), 19; GRANT, Ibis (1896), 546; WHITEHEAD, Ibis (1899), 215; MCGREGOR, Pub. Govt. Labs. (1905), 25, 32; MCGREGOR and WORCESTER, Hand-List (1906), 79.

Iole philippinensis BOURNS and WORCESTER, Minnesota Acad. Nat. Sci. Occ. Papers (1894), 1, 60 (part).

Iole philippensis SHARPE, Hand-List (1901), 3, 313 (part).

Pá-la-go, Ticao, used for *Pycnonotus* also.

Bantayan (*McGregor*); Guimaras (*Meyer, Steere Exp.*); Masbate (*Bourns & Worcester, McGregor*); Negros (*Steere, Everett, Steere Exp., Bourns & Worcester, Whitehead, Keay*); Panay (*Steere Exp., Bourns & Worcester*); Ticao, (*McGregor*); Verde (*McGregor*).

Adult.—Very similar to *Iole gularis* from which it differs only in being slightly larger and in having the throat and breast paler. Ten males from Masbate and Ticao yield the following extreme and average measurements: Wing, 102 to 111 (107); tail, 86 to 94 (90); exposed culmen, 22 to 25 (23); bill from nostril, 15 to 18 (17); tarsus, 19.5 to 23 (21). Nine females from the same localities measure: Wing, 98 to 106 (99); tail, 87 to 99 (88); exposed culmen, 20.5 to 25 (21); bill from nostril, 15 to 17 (16); tarsus, 18 to 22 (20).

"Doctor Steere separates the *Iole* from Panay, Guimaras, and Negros from the Luzon, Samar, Bohol, Cebu, Leyte, and Mindanao birds. He states that *I. guimarasensis* has the 'size and general coloring of *I. rufigularis,* with the light shaft-streaks of *I. philippinensis.*' The latter differences would not seem to be of special value in differentiating it *from I. philippinensis* and we can find nothing in the size or color of our large series of specimens from the central Philippines to warrant us in separating them from typical *I. philippinensis* [=*gularis*].

"Steere mentions the very different note of the Cebu birds. We were unable to perceive the slightest difference in the notes of the birds in question and incline to the opinion that the Doctor must have heard the note of *I. monticola* when he crossed over into Cebu." (*Bourns and Worcester.*)

484. IOLE MINDORENSIS Steere.

MINDORO BULBUL.

Iole mindorensis STEERE, List Birds & Mams. Steere Exped. (1890), 19; GRANT and WHITEHEAD, Ibis (1898), 238, pl. 5, fig. 2 (egg); WHITEHEAD, Ibis (1899), 215; SHARPE, Hand-List (1901), 3, 314; OATES and REID, Cat. Birds' Eggs (1903), 3, 307; MCGREGOR, Bur. Govt. Labs. Manila (1905), 34, 20 (nest and egg); MCGREGOR and WORCESTER, Hand-List (1906), 79.

Mindoro (*Steere Exp., Schmacker, Bourns & Worcester, Whitehead, McGregor, Porter*); Semirara (*Worcester*).

Adult.—Very much like *Iole gularis,* but chin and throat light drab-brown; whitish shaft-streaks less conspicuous than in either *I. gularis* or *I. guimarasensis;* sides of breast and flanks grayer; under parts with fewer streaks of pale yellow. Ten males measure: Wing, 102 to 107 (105); tail, 90 to 99 (95); exposed culmen, 21 to 24 (23); bill from nostril, 15 to 18 (17); tarsus, 18 to 21 (20); Four females, wing, 98 to 99 (98.5); tail, 91 to 95 (92); exposed culmen, 21 to 22 (21.5); bill from nostril, 15 to 16.5 (16); tarsus, 19 to 20 (19.8).

"Quite common in Mindoro. Two males average: Length, 222; wing, 100.5; tail, 91; culmen, 26; tarsus, 19; middle toe with claw, 22. A female, length, 235; wing, 97; tail, 90; culmen, 27; tarsus, 18.5; middle toe with claw, 21. Iris chocolate-brown: bill, legs, feet, and nails leaden." (*Bourns and Worcester MS.*)

On April 2, 1905, I collected, in Mindoro, a nest with three eggs of this species. The ground-color of the eggs is white, under shell-markings faint lavender, and entire surface thickly and uniformly marked with elongated and twisted spots of reddish brown. The eggs measure: 26.1 by 18.2, 25.4 by 18, and 25.1 by 19.

The nest was composed of several leaves which were held in place by threads of a black hair-like fungus; cobweb and green moss in small quantities also entered into the construction. The lining consisted of a quantity of long slender fibers.

485. **IOLE SIQUIJORENSIS** Steere.

SIQUIJOR BULBUL.

Iole siquijorensis STEERE, List Birds and Mams. Steere Exped. (1890), 19; SHARPE, Hand-List (1901), 3, 314; MCGREGOR and WORCESTER, Hand-List (1906), 79.

Tig-ba-ya, Siquijor.

Siquijor (*Steere Exp., Bourns & Worcester, Celestino*).

Adult.—Forehead and entire top of head seal-brown; rest of upper parts, wings, and tail lighter brown, the feathers edged with dark olivaceous; tips of greater and median wing-coverts whitish, or light brown, forming two wing-bars; sides of head and neck light brown; chin, throat, and breast brown with a slight olivaceous wash, the feathers with white shaft-streaks, the streaks on chin and throat very wide; middle of lower breast, abdomen, under tail-coverts, axillars, and wing-lining white, faintly washed with pale yellow: sides, flanks, and thighs light drab-brown. A male measures: Wing, 133; tail, 121; culmen from base, 32; bill from nostril, 21; tarsus, 23. A female measures: Wing, 122; tail, 111; culmen from base, 31; bill from nostril, 20; tarsus, 23.

This distinct species may be recognized by its entirely seal-brown head.

"The Siquijor bulbul is found about low bushes in open fields, often in flocks. Twelve males average: Length, 279; wing, 132; tail, 118; culmen, 31; tarsus, 22; middle toe with claw, 25. Four females, wing, 121; tail, 109; culmen, 30; tarsus, 22; middle toe with claw, 23. Iris chocolate-brown; legs, feet, and nails brown, bottoms of feet yellowish; upper mandible black, lower black to dark brown." (*Bourns and Worcester MS.*)

486. **IOLE CINEREICEPS** Bourns and Worcester.

ASHY-HEADED BULBUL.

Iole cinereiceps BOURNS and WORCESTER, Minnesota Acad. Nat. Sci. Occ. Papers (1894), 1, 25; SHARPE, Hand-List (1901), 3, 314; McGREGOR and WORCESTER, Hand-List (1906), 79.

Romblon (*Bourns & Worcester, McGregor*); Tablas (*Bourns & Worcester, Celestino*).

Adult.—Entire top of head slate-gray, bases of the feathers olive-brown, the shafts nearly black; chin and throat white, streaked with pale yellow; otherwise very similar to *Iole siquijorensis*. A male measures: Wing, 126; tail, 115; culmen from base, 32; bill from nostril, 21; tarsus, 22. A female, wing, 122; tail, 111; culmen from base, 30; bill from nostril, 19; tarsus, 24.

"The ashy-headed bulbul occurs in the open, but is far more abundant in the woods. Eleven males from Romblon measure: Length, 288; wing, 131; tail, 115; culmen, 35; tarsus, 22; middle toe with claw, 26. Four females from the same locality, length, 274; wing, 122; tail, 109; culmen, 33; tarsus, 22; middle toe with claw, 25. Males and females from Tablas average slightly less in length, but are otherwise identical with Romblon birds. Iris, legs, feet, and nails very dark brown; bill black." (*Bourns and Worcester MS.*)

487. **IOLE MONTICOLA** Bourns and Worcester.

MOUNTAIN BULBUL.

Iole monticola BOURNS and WORCESTER, Minnesota Acad. Nat. Sci. Occ. Papers (1894), 1, 25; Sharpe, Hand-List (1901), 3, 314; McGREGOR and WORCESTER, Hand-List (1906), 79.

Cebu (*Bourns & Worcester, McGregor*).

Adult.—Very similar to *Iole siquijorensis* but smaller; top of head lighter seal-brown; forehead washed with slate-gray; mantle and back more ruddy; ear-coverts tawny; chin and fore throat almost solid white. A male measures: Wing, 127; tail, 117; culmen from base, 32; bill from nostril, 21; tarsus, 22.

"*Iole monticola* differs from *Iole siquijorensis,* its nearest ally, in its more ruddy upper surface, its lighter head with a wash of ashy gray on front of crown, in its lighter ear-coverts and tawny throat, and in its lighter under wing- and tail-coverts. So far as our observation goes it is a highland form. It was invariably met with by us in the forest on the tops and sides of the hills in central Cebu and was never seen in open or flat country." (*Bourns and Worcester.*)

"Three males average: Length, 267; wing, 121; tail, 111; culmen, 31; tarsus, 22; middle toe with claw, 24. A female measures, 260 in length; wing, 115; tail, 102; culmen, 31; tarsus, 23; middle toe with claw, 23. Iris, legs, feet, and nails dark brown; bill nearly black. Breeding in June." (*Bourns and Worcester MS.*)

Genus POLIOLOPHUS Sharpe, 1877.

Occipital crest short and pointed; eye surrounded by a narrow wattle; bill from base about equal to tarsus; rictal bristles long, the longest much more than bill from nostril; rectrices graduated and tipped with white; difference between lengths of outermost and middle tail-feathers more than length of bill from nostril.

488. **POLIOLOPHUS UROSTICTUS** (Salvadori).

WATTLED BULBUL.

Brachypus urostictus SALVADORI, Atti R. Accad. Sc. Torino (1870), **5**, 509.
Pycnonotus urostictus WALDEN, Trans. Zool. Soc. (1875), **9**, pl. 32, fig. 2.
Poliolophus urostictus SHARPE, Trans. Linn. Soc. 2d. ser. Zool. (1877), **1**, 334; Cat. Birds Brit. Mus. (1881), **6**, 63 (text figure of head); Hand-List (1901), **3**, 315; WHITEHEAD, Ibis (1899), 215; OATES and REID, Cat Birds' Eggs (1903), **3**, 308, pl. 10, fig. 9 (egg); MCGREGOR and WORCESTER, Hand-List (1906), 79.
Poliolophus basilanicus STEERE, List Birds & Mams. Steere Exped. (1890), 19.

Basilan (*Steere Exp., McGregor*); Bohol (*McGregor*); Catanduanes (*Whitehead*); Dinagat (*Everett*); Leyte (*Steere Exp., Whitehead*); Luzon (*Meyer, Steere Exp., McGregor, Whitehead*); Mindanao (*Everett, Steere Exp., Goodfellow, Celestino*); Panaon (*Everett*); Samar (*Bourns & Worcester*).

Adult.—Top of head dark brown, shaft-lines seal-brown; rest of upper parts dark olive-green, the shafts of the feathers darker; feathers of lower back long and thick-set, forming a bunch which covers the feathers of the rump; the long feathers with dark brown subterminal spots and some of the lateral ones tipped with white washed with pale yellow; rectrices brown, each with a subterminal blackish area and a distinct white tip; sides of head dark drab; chin and throat drab-gray; breast ashy brown, this color, faintly washed with olivaceous, extends onto sides of neck and breast and onto flanks; rest of under parts white with some streaks of pale yellow on breast; axillars and wing-lining white, washed with light yellow. Iris gray; eyelids lemon-yellow; bill and feet black. Length, about 185. A male from Luzon measures: Wing, 80; tail, 75; culmen from base, 15; bill from nostril, 9; tarsus, 16. A male from Bohol, wing, 78; tail, 73; culmen from base, 15; bill from nostril, 9; tarsus, 17. A male from Basilan, wing, 80; tail, 80; culmen from base, 17; bill from nostril, 10.5 tarsus, 17.

In specimens from Basilan the bill is slightly longer and the white spots on the rectrices occupy more space than in specimens from Luzon.

"The wattled bulbul is fairly common about fruit trees in the forest and in open fields. A male measures: Length, 187; wing, 78; tail, 81; culmen, 16; tarsus, 16; middle toe with claw, 17. A female, length, 174; wing, 78; tail, 80; culmen, 16; tarsus, 16; middle toe with claw, 17. Iris dark brown; legs, feet, and nails brown; bill black; eye-wattles yellow." (*Bourns and Worcester MS.*)

Genus MICROTARSUS Eyton, 1839.

The Philippine species of the genus *Microtarsus* is characterized by its long tail-coverts, which are two-thirds the length of tail and nearly as long as the outermost pair of rectrices; rectrices graduated, and tipped with bright yellow: the colors are black and yellow.

489. MICROTARSUS MELANOCEPHALOS (Gmelin).

BLACK-HEADED BULBUL.

Lanius melanocephalos GMELIN, Syst. Nat. (1788), 1, pt. 1, 309.
Micropus melanocephalus SHARPE, Cat. Birds, Brit. Mus. (1881), 6, 65; OATES, Fauna Brit. Ind. Bds. (1889), 1, 294, fig. 91 (tail).
Microtarsus melanocephalus SHARPE, Hand-List (1901), 3, 315; MCGREGOR and WORCESTER, Hand-List (1906), 80.

Palawan (*Everett, Whitehead, Platen, Steere Exp., Bourns & Worcester, McGregor, Celestino, White*). Malay Peninsula, Burmese provinces, eastern Bengal, Sumatra, Java, Borneo.

Adult.—Entire head, chin, and throat black, faintly glossed with green and purple; mantle and back olive-yellow, gradually becoming citron-yellow on rump and tail-coverts; feathers of lower back long and thick-set, overhanging the rump, each feather with a subterminal black band; breast and sides olive-yellow, becoming lighter posteriorly and bright egg-yellow on middle of abdomen and on under tail-coverts; wings mostly black, but the secondaries and their coverts broadly edged with citron-yellow; inner webs of quills edged with white; axillars and wing-lining pale yellow; basal part of tail olive-green, followed by a wide black sub-terminal bar; tips of rectrices bright egg-yellow· The sexes are similar in colors, but the female is a little the darker. Length, about 165. A male measures: Wing, 77; tail, 67; culmen from base, 16.5; bill from nostril, 10; tarsus, 15. A female, wing, 75; tail, 67; culmen from base, 15; bill from nostril, 9; tarsus, 12.

"The black-headed bulbul is fairly common in Palawan. It is usually seen about trees and bushes in the open, but is occasionally met with in the forest, above the tree tops. Seven males average: Length, 170; wing, 76; tail, 68; culmen, 16.5; tarsus, 14; middle toe with claw, 16. Three females, length, 167; wing, 75; tail, 69; culmen, 15; tarsus, 13; middle toe with claw, 16. Iris bright blue; bill, legs, feet, and nails black." (*Bourns and Worcester MS.*)

Genus TRICHOPHORUS Temminck, 1821.

This genus resembles *Irena* in having long nuchal hairs and a rather short, slightly compressed, bill, but in *Trichophorus* the nostrils are exposed and the wings are relatively short and rounded, the primaries exceeding the secondaries by about the length of tarsus; head slightly crested; the colors are olive-yellow, light yellow, brown, and gray.

Species.

a^1. Chin and throat clear gray; much larger; wing, more than 95 mm. **frater** (p. 514)

a^2. Chin and throat gray, streaked with yellow; much smaller; wing, less than 90 mm .... **palawanensis** (p. 515)

490. TRICHOPHORUS FRATER (Sharpe).

GRAY-THROATED HAIRY BULBUL.

Criniger frater SHARPE, Trans. Linn. Soc. 2d. ser. Zool. (1877), 1, 334; Cat. Birds Brit. Mus. (1881), 6, 79, pl. 5; Hand-List (1901), 3, 317; McGREGOR and WORCESTER, Hand-List (1906), 80.

Trichophorus frater OBERHOLSER, Smiths. Misc. Colls. (1905), 48, 152.

Balabac (*Steere Exp., Everett*); Calamianes (*Bourns & Worcester*); Palawan (*Steere Everett, Whitehead, Platen, Steere Exp., Bourns & Worcester, Celestino, White*).

Adult.—Top of head dark tan-brown; back and rump olive-green; upper tail-coverts and rectrices tan-brown, edged with tawny olive; lores, sides of face, a narrow supercilium, and ear-coverts light gray, the last streaked with white; chin, throat, and breast clear light gray with white shaft-lines; feathers of breast edged with yellow; rest of under parts yellow, darker on crissum and slightly olivaceous on sides and flanks; wings brown, quills edged with ruddy olive on outer webs and with ocherous-white on inner webs; axillars and wing-lining pale yellow. Sexes similar in colors. Length, about 230. A male measures: Wing, 108; tail, 97; culmen from base, 23; bill from nostril, 14; tarsus, 22. A female, wing, 100; tail, 92; culmen from base, 21; bill from nostril, 13; tarsus, 20.

"This bulbul is very common and feeds always in the woods, so far as our observation goes. Four males average: Length, 213; wing, 104; tail, 92; culmen, 23; tarsus, 19; middle toe with claw, 21. A female, length, 209; wing, 100; tail, 88; culmen, 23; tarsus, 20; middle toe with claw, 22. Iris reddish to chocolate-brown; legs, feet, and nails very light brown; bill brown." (*Bourns and Worcester MS.*)

491. TRICHOPHORUS PALAWANENSIS (Tweeddale).

PALAWAN HAIRY BULBUL.

Criniger palawanensis TWEEDDALE, Proc. Zool. Soc. (1878), 618; SHARPE, Cat. Birds Brit. Mus. (1881), **6**, 83, pl. 6, fig. 2; Hand-List (1901), **3**, 318; MCGREGOR and WORCESTER, Hand-List (1906), 80.

Trichophorus palawanensis OBERHOLSER, Smiths. Misc. Colls. (1905), **48**, 152.

Palawan (*Steere, Whitehead, Platen, Steere Exp., Bourns & Worcester, Celestino*).

Adult.—Above scarcely different from *T. frater*, except that the feathers on top of head have light shaft-lines; ear-coverts olive-green with whitish shaft-lines; lores white, mixed with olive-green; cheeks, chin, throat, and breast pale yellow, streaked with white; rest of under parts pale lemon-yellow, olivaceous along the sides and flanks; crissum light ocherous-yellow. The sexes are similar; length, about 190. A male measures: Wing, 82; tail, 76; culmen from base, 18; bill from nostril, 12; tarsus, 18. A female, wing, 81; tail, 72; culmen from base, 18; bill from nostril, 12; tarsus, 18.

"Common in Palawan; feeds about bushes in the open, frequently in good sized flocks. Four males measure: Length, 185; wing, 84; tail, 73; culmen, 20; tarsus, 17; middle toe with claw, 18. Three females, length, 174; wing, 81; tail, 74; culmen, 19.8; tarsus, 17; middle toe with claw, 18. Eyes usually straw-yellow; in one case light hazel; legs, feet, and nails light brown; upper mandible nearly black, lower gray." (*Bourns and Worcester MS.*)

Genus PYCNONOTUS Boie, 1826.

Bill short, when measured from base, less than tarsus; rictal bristles usually less than bill from nostril; wing short and rounded; the primaries exceed secondaries by less than length of tarsus; a short crest which is not very evident in dry skins.

Species.

a^1. Legs and feet black; supercilium white, contrasting with the black lores; ear-coverts brown .... **goiavier** (p. 516)

a^2. Legs and feet light brown; supercilium and lores dull olive-brown like the crown; ear-coverts with white shaft-lines .... **cinereifrons** (p. 517)

492. PYCNONOTUS GOIAVIER (Scopoli).

GUAVA BULBUL.

Muscicapa goiavier SCOPOLI, Del. Flor. et Faun. Insubr. (1786), 2, 96.
Pycnonotus goiavier SHARPE, Cat. Birds Brit. Mus. (1881), 6, 141; Hand-List (1901), 3, 330; GRANT and WHITEHEAD, Ibis (1898), 239; WHITEHEAD, Ibis (1899), 215; OATES and REID, Cat. Birds' Eggs (1903), 3, 316; MCGREGOR and WORCESTER, Hand-List (1906), 80.
Pycnonotus goiavier suluensis MEARNS, Proc. U. S. Nat. Mus. (1909), 36, 470 (Sulu, Mindanao, and Basilan).*

Pá-la-go, Ticao; this name also used for *Iole*. *Luc-lac*, Manila; *cul-cul*, in general.

Basilan (*Everett, Steere Exp., Bourns & Worcester, McGregor*); Bohol (*Everett, Steere Exp., McGregor*); Caluya (*Porter*); Cebu (*Steere Exp., Bourns & Worcester, McGregor*); Guimaras (*Steere Exp., Bourns & Worcester*); Leyte (*Everett, Whitehead, Bartsch*); Libagao (*Porter*); Luzon (*Meyer, Möllendorff, Everett, Bourns & Worcester, Whitehead, McGregor, Bartsch*); Marinduque (*Steere Exp.*); Masbate (*Bourns & Worcester, McGregor*); Mindanao (*Murray, Everett, Koch & Schadenberg, Goodfellow, Celestino*); Mindoro (*Steere Exp., Schmacker, Bourns & Worcester, McGregor*); Negros (*Everett, Steere Exp., Bourns & Worcester, Keay*); Nipa (*Everett*); Panay (*Bourns & Worcester*); Romblon (*McGregor*); Samar (*Bourns & Worcester, Whitehead*); Sulu (*Guillemard, Bourns & Worcester, Bartsch*); Tablas (*Bourns & Worcester, Celestino*); Ticao (*McGregor*); Verde (*McGregor*).

Adult.—Middle of forehead and crown seal-brown, bordered on each side by a band of white extending from base of bill over eyes to sides of occiput; lores and a ring around eye black; above including wings and tail dark brown, the feathers fringed with earthy or ocherous brown; ear-coverts brown; spot below eye, jaw, and most of the under parts white; breast and sides with distinct brown shaft-streaks; flanks and thighs brown; abdomen washed with pale yellow; crissum lemon-yellow; axillars and wing-lining white, washed with yellow. Sexes similar in color. A male from Mindanao measures: Wing, 76; tail, 73; culmen from base, 17; bill from nostril, 9.5; tarsus, 20. A female from Basilan, wing, 78; tail, 77; culmen from base, 18; bill from nostril, 10; tarsus, 20.

"The guava bulbul is one of the commonest of Philippine birds; it is called 'cul-cul' by the natives. Very abundant about fruit trees and bushes in the open fields, and in scrub and second growth; much rarer in deep forest. Four male birds average: Length, 189; wing, 84; tail, 84; culmen, 19; tarsus, 20; middle toe with claw, 21. Iris dark brown; bill, legs, and feet black; one specimen had been eating insects." (*Bourns and Worcester MS.*)

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* Mearns gives the following characters for this subspecies: "Similar to the Luzon guava bulbul (*Pycnonotus goiavier goiavier*), but smaller, with relatively shorter tail, broader supraorbital white stripes, and a paler auricular patch." The comparative measurements given by Mearns are not convincing and I am not prepared to admit the validity of this subspecies.

Two eggs were collected by Whitehead near Paranas, Samar, on June 24, 1896. Steere took three eggs at Dumaguete, Negros, February 11, 1888, and four eggs in Marinduque, May 12, 1888. The two eggs from Samar are thus described: "Shape ovate. Ground-color pale pinkish white, very thickly mottled all over with light red and underlying grayish lavender blotches. Measurements 21 mm. by 15 mm.

"Nest cup-shaped, built of fine roots, and placed in a low tree about five feet [1.5 meters] from the ground in an open situation." (*Grant and Whitehead.*)

493. **PYCNONOTUS CINEREIFRONS** (Tweeddale).

ASHY-FRONTED BULBUL.

Brachypus cinereifrons TWEEDDALE, Proc. Zool. Soc. (1878), 617.
Pycnonotus cinereifrons SHARPE, Cat. Birds Brit. Mus. (1881), 6, 153; Hand-List (1901), 3, 332; MCGREGOR and WORCESTER, Hand-List (1906), 80.

Calamianes (*Bourns & Worcester*); Palawan (*Everett, Whitehead, Platen, Steere Exp., Bourns & Worcester, McGregor, Celestino, White*).

Adult (*sexes alike*).—Above dull olive-green; feathers on top of head with dark centers and gray edges; ear-coverts brown with distinct whitish shaft-lines; cheeks brown, streaked with gray; chin and throat whitish; breast and sides ashy brown, slightly washed with olivaceous; abdomen buffy white; flanks brown; thighs and crissum buff; wings and tail brown, most of the feathers edged with dull olive-green; wing-coverts entirely olive-green; axillars and wing-lining light yellow. Length, about 190. A male measures: Wing, 84; tail, 76; culmen from base, 16; bill from nostril, 11; tarsus, 19. A female, wing, 80; tail, 73; culmen from base, 18; bill from nostril, 11; tarsus, 20.

"Four males from Calamianes average: Length, 190; wing, 86; tail, 78; culmen, 22; tarsus, 19; middle toe with claw, 20. Three females, length, 189; wing, 83; tail, 79; culmen, 20; tarsus, 19; middle toe with claw, 20. Both males and females from Palawan average sligthly less in length; other measurements are about the same. Bill nearly black; iris, legs, feet, and nails brown." (*Bourns and Worcester MS.*)

Family **TIMELIIDÆ.**

Bill slender, rarely decidedly strong, never broad; culmen more or less ridged, curved at tip; a slight notch near tip of upper mandible; gonys slightly to somewhat strongly curved; culmen from base less than tarsus; nostril opening covered by a flat scale or partly closed by a membrane; rictal bristles evident, but seldom greatly developed; wings short, rounded, and curved to the body; first, second, and third primaries very unequal and much shorter than longest quill; tarsus and toes long; tarsus booted or with obsolete divisions.

Subfamilies.

a^1. Male and female similar in colors; plumage, especially of back and rump, lax and decomposed; tarsus stouter.. **Timeliinæ** (p. 518)
a^2. Male and female very unlike in colors; plumage not noticeably decomposed; tarsus more slender.. **Brachypteryginæ** (p. 538)

Subfamily TIMELIINÆ.

Tarsus rather stout; plumage of back, rump, and flanks lax and decomposed, the feathers of the back often lengthened and overhanging the rump and tail-coverts.

Genera.

a^1. Tail much longer than wing; rectrices pointed, their shafts stiff, and their webs decomposed .... **Pseudotharrhaleus** (p. 518)
a^2. Tail shorter than wing; rectrices usually not pointed, their shafts not very stiff, and their webs not decomposed.
  b^1. Tail very short, only one-half to two-thirds as long as wing; tarsus long, the outstretched feet reaching beyond the end of tail.
    c^1. Tail but little longer than tarsus; wing twice the tarsus. **Anuropsis** (p. 525)
    c^2. Tail equal to tarsus and middle toe without claw; wing one and one-half times the tarsus.. **Ptilocichla** (p. 522)
  b^2. Tail not very short, more than three-fourths as long as wing; outstretched feet not reaching end of tail.
    c^1. Bill very much deeper and stronger, the tip decidedly hooked; rictal bristles well developed, longer than bill from nostril.. **Turdinus** (p. 521)
    c^2. Bill more slender, the tip but slightly hooked; rictal bristles shorter.
      d^1. A tuft of lengthened feathers above each eye...... **Dasycrotapha** (p. 526)
      d^2. No lengthened feathers above eye; plumage soft and more or less decomposed.
        e^1. Feathers of back not greatly lengthened; nostril with an overhanging membrane .... **Zosterornis** (p. 527)
        e^2. Feathers of back greatly lengthened, decomposed, and overhanging the tail-coverts; nostril opening without an overhanging membrane.
          f^1 Long feathers of back without greatly stiffened shafts. **Mixornis*** (p. 533)
          f^2. Long feathers of the back with shafts conspicuously stiffened. **Macronous** (p. 534)

Genus PSEUDOTHARRHALEUS Grant, 1895.

Bill slender, rictal bristles short and weak; wing very short, rounded, and curved to the body; fifth to eighth primaries nearly equal and longest; tarsus and feet strong; tarsus one and one-half times the culmen from base; hind toe with claw about equal to culmen; tail long; rectrices graduated, pointed, and with stiff shafts and decomposed webs.

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* *Leonardina* (p. 537) probably belongs near *Mixornis* and *Macronous*; I have not seen it.

Species.

a^1. Smaller; wing, 61 to 63 mm.; tail, 70 to 80.
  b^1. Chin and throat gray.
    c^1. Tail longer, about 88 mm. .... **caudatus** (p. 519)
    c^2. Tail shorter, about 70 mm. .... **griseipectus** (p. 519)
  b^2. Chin and throat light brown tinged with buff; tail, about 75 mm. **unicolor** (p. 519)
a^2. Larger; wing, 66 mm.; tail, 90; feathers of chest heavily marked with black centers .... **malindangensis** (p. 520)

494. PSEUDOTHARRHALEUS CAUDATUS Grant.

LUZON WOOD ACCENTOR.

Pseudotharrhaleus caudatus GRANT, Bull. Brit. Orn. Club (1895), 4, 40; Ibis (1895), 448, pl. 13; WHITEHEAD, Ibis, (1899), 222, (habits); SHARPE, Hand-List (1903), 4, 29; McGREGOR and WORCESTER, Hand-List (1906), 80.

Luzon (*Whitehead, McGregor*).

Adult (*sexes alike*).—Above rich umber or dark brown, a grayish line on each side above lores and eye; lores brown; cheeks and ear-coverts brown with narrow whitish shaft-lines; chin and throat whitish, bordered on each side with gray; breast gray; sides of neck and breast gray with a faint olivaceous wash; flanks and thighs dark brown like upper parts; crissum lighter; middle of abdomen gray. Iris light brown; bill black; lower mandible whitish; legs dark brown; feet and nails lighter brown. Length, about 190. Two males measure: Wing, 61, 62; tail, 85, 88; culmen from base 17, 17; bill from nostril, 11, 10; tarsus, 26, 27.

495. PSEUDOTHARRHALEUS UNICOLOR Hartert.

MINDANAO WOOD ACCENTOR.

Pseudotharrhaleus unicolor HARTERT, Bull. Brit. Orn. Club (1904), 14, 74; McGREGOR and WORCESTER, Hand-List (1906), 80; GRANT, Ibis (1906), 479.

Mindanao (*Goodfellow*).

"*Female.*—Of exactly the same structure as *P. caudatus* Grant, from Luzon, but the tail much shorter, the upper side deeper rufous-brown, the whole under side rufous-brown with an olive tinge, only the upper throat lighter and somewhat tinged with buff. Wing, 92.5 [62.5?]; tail, 75; culmen from forehead, 16; metatarsus, 26." (*Hartert.*)

496. PSEUDOTHARRHALEUS GRISEIPECTUS Mearns.

GRAY-BREASTED WOOD ACCENTOR.

Pseudotharrhaleus griseipectus MEARNS, Proc. Biol. Soc. Wash. (1905), 18, 2; McGREGOR and WORCESTER, Hand-List (1906), 81.

Mindanao (*Mearns*).

"*Adult female* (*type and only specimen*).—Size similar to that of the female of *P. unicolor* Hartert, assuming that the measurement 'wing

92.5' is a typographical error for 62.5, but the bill appears to be 2 mm. shorter. Coloration similar to that of the male and female of *P. caudatus* Grant, from which it may be readily distinguished by the shortness of the tail, 81 mm. in the female of *P. griseipectus* and 86.36 in the female of *P. caudatus.* The outermost tail-feather is slender and abortive, measuring 32 mm. in length; tarsus with six scutes; rictal bristles scarcely discernible; plumage soft and loose, the feathers of the back and rump 35 mm. in length, with gray bases and fluffy aftershafts; webs of rectrices decomposed and abraded apically; general color above burnt umber, washed with vandyke-brown on rump and upper tail-coverts; tail darker; wing-quills brownish black, the outer webs margined with the same color as the upper parts and extending to the outer webs of the under side of wing; head darker, inclining to sepia, with a dirty grayish supraorbital stripe; sides of throat, breast, and a wash down center of abdomen mouse-gray; chin and middle of throat white, each feather with a grayish middle; sides, crissum, and under tail-coverts like the back; breast tinged with gray. Iris hazel; bill with maxilla black; mandible grayish horn-color; feet and claws sepia-brown (from fresh specimens). Length, 176; alar expanse, 200; wing, 63; tail, 81; bill, measured from base of mandible, 14; bill from nostril, 8.5; tarsus, 14; middle toe with claw, 23." (*Mearns.*)

497. PSEUDOTHARRHALEUS MALINDANGENSIS Mearns.

MALINDANG WOOD ACCENTOR.

Pseudotharrhaleus malindangensis MEARNS, Proc. U. S. Nat. Mus. (1909), 36, 441.

Mindanao (*Mearns*).

"*Characters.*—The largest known species of *Pseudotharrhaleus;* gray of cheeks and supraorbital stripe obscured by heavy markings of brown: feathers of chest heavily marked with black centers.

"*Adult male (type and only specimen).*—General color above burnt umber, washed with vandyke-brown on rump and upper tail-coverts; tail darker; wing-quills brownish black, with outer webs broadly margined with the same color as the upper parts and extending to the outer webs of the under side of wing; head sepia above, without an appreciable supraorbital stripe; sides of head grayish brown, maculated with bister; chin and upper throat dirty whitish; much obscured by dusky macules occupying the centers of the feathers; middle of chest gray, heavily marked with blackish centers to the feathers; sides, crissum and under tail-coverts, axillars, and lining of wings like the back, this color shading to wood-brown on middle of belly. Iris brown; bill plumbeous-black; feet and claws brown (from fresh specimen). The following measurements were taken from the type specimen, freshly killed, by the writer:

Total length, 196; alar expanse, 212; wing, 66; tail, 90; culmen (chord), 16.5; bill from nostril, 10.3; from occiput to tip of bill, 42; tarsus, 28; middle toe with claw, 25.

"This bird was usually found in hollows under mossy logs. Its note resembles the alarm call of the American *Pipilo fuscus mesoleucus*." (*Mearns.*)

Genus TURDINUS Blyth, 1844.

Bill stout and deep; tip of upper mandible strongly curved and forming an overhanging hook; rictal bristles well developed, the longest nearly as long as bill from nostril; wing moderate in length, not greatly curved, longer than tail by about one-half the tarsus; tarsus strong and slightly longer than culmen from base.

498. **TURDINUS RUFIFRONS** (Tweeddale).

RUFOUS-HEADED BABBLER.

Trichostoma rufifrons TWEEDDALE, Proc. Zool. Soc. (1878), 616, pl. 38 (*Trichostomus* on plate).

Turdinus rufifrons SHARPE, Cat. Birds Brit. Mus. (1883), 7, 546; Hand-List (1903), 4, 33; McGREGOR and WORCESTER, Hand-List (1906), 81.

Balabac (*Everett*); Palawan (*Everett, Whitehead, Platen, Steere Exp., Bourns & Worcester, Celestino*).

Adult.—Above fulvous-brown, the feathers of head more rufous and with dark shafts and tips; back more ashy, rump more rufous; lores, line under eye, and line over eye to occiput ashy gray; cheeks and ear-coverts fulvous; under parts white; chin and throat with a few dusky shaft-lines; fore breast, sides of breast, and under tail-coverts washed with ocherous; flanks and thighs light brown; wings brown, edges of primaries and secondaries lighter and slightly olivaceous; rectrices bark-brown, the edges rusty brown. Length, 185 to 200. A male from Palawan measures: Wing, 86; tail, 81; culmen from base, 23; bill from nostril, 14; tarsus, 25. A female, wing, 82; tail, 73; culmen from base, 20; bill from nostril, 12; tarsus, 24.

"Common in the deep woods of Palawan, where it is found in the tops of low trees and in tangled vines. It hides cleverly and is difficult to see. It is a great whistler, and can be readily called up by imitating its note.

"Six males average: Length, 204; wing, 85; tail, 78; culmen, 23; tarsus, 24; middle toe with claw, 24. Four females, length, 191; wing, 82; tail, 64; culmen, 21; tarsus, 24; middle toe with claw, 23. Iris pale straw-color; legs and feet light slate; nails lighter than feet, their tips white; upper mandible black, lower light slate." (*Bourns and Worcester MS.*)

Genus PTILOCICHLA Sharpe, 1877.

Bill moderate in size; culmen from base contained one and one-half times in tarsus; no bristles anywhere about the mouth; wings rounded and short; tarsus and feet stout, the outstretched toes extending to, or beyond, the end of tail; plumage lax and decomposed; feathers of the back long and overhanging the rump. Chin and throat white; breast and abdomen streaked with white.

Species.

- a^1. Back blackish brown; larger; wing, about 80 mm.; tail, 60.... **falcata** (p. 522)
- a^2. Back reddish brown; smaller.
  - b^1. Shaft-lines on upper parts less prominent; wing, about 75 mm.; tail, 50.
    - c^1. Above slightly darker and more reddish brown........ **mindanensis** (p. 523)
    - c^2. Above lighter and slightly olivaceous.............................. **basilanica** (p. 523)
  - b^2. Shaft-lines on upper parts more prominent; wing, about 70 mm.; tail, 42. **minuta** (p. 524)

499. PTILOCICHLA FALCATA Sharpe.

PALAWAN GROUND BABBLER.

Ptilocichla falcata SHARPE, Trans. Linn. Soc. 2d. ser. Zool. (1877), 1, 332, pl. 50, fig. 3; Cat. Birds Brit. Mus. (1883), 7, 586; Hand-List (1903), 4, 40; MCGREGOR and WORCESTER, Hand-List (1906), 81.

Balabac (*Everett*); Palawan (*Steere, Whitehead, Platen, Steere Exp., Bourns & Worcester*).

"*Adult male.*—Top of the head and nape rufous-brown; sides of the forehead and a stripe behind the eye fawn-rufous; lores narrow and white; spot before the eye and ear-coverts black; cheeks and throat white, with a narrow malar streak of blackish; entire back blackish brown, the feathers broadly centered with fulvous; the feathers of the lower back long, but somewhat sickle-shaped and hanging over on each side, brown or black in color, broadly streaked with white; wings rufous-brown, the quills internally blackish; tail entirely rufous-brown; under surface of body blackish, the feathers broadly streaked with white down the middle; thighs, under wing-coverts, and under tail-coverts brown, streaked with fulvous. Bill yellowish horn-color, the mandible more yellow; feet dark brown. Length, 173; culmen, 24; wing, 81; tail, 61; tarsus, 33." (*Sharpe.*)

"Not rare in Palawan, but difficult to see, as it is shy and protectively colored. It seems to be a very pugnacious bird, and the males can be readily called by imitating their note. They come apparently prepared to do battle. We found *P. falcata* at a height of 760 meters on Mount Pulgar.

"A male measures: Length, 203; wing, 86; tail, 70; culmen, 26; tarsus, 33; middle toe with claw, 29. Iris reddish brown; legs and feet dark gray; upper mandible black, lower gray; breeding in January." (*Bourns and Worcester MS.*)

500. PTILOCICHLA BASILANICA Steere.

BASILAN GROUND BABBLER.

Ptiocichla (?) *basilanica* STEERE, List Birds and Mams. Steere Exped. (1890), 18 (error).
Ptilocichla basilanica STEERE, Ibis, (1891), 312, pl. 7; SHARPE, Hand-List (1903), 4, 40; MCGREGOR and WORCESTER, Hand-List (1906), 81.

Basilan (*Steere Exp., Bourns & Worcester, Celestino*).

Adult.—Above dark or reddish brown, most of the feathers with lighter shafts, feathers of head darker and with blackish brown margins; lores white, some of the feathers tipped with black; line under eye white; line over eye extending to nape white; ear-coverts brown with light shafts, bordered below by a narrow white line which is separated from the white chin and throat by a black line; feathers of breast, abdomen, and tail-coverts with wide median white stripes and black edges; sides and flanks reddish brown with lighter shafts; thighs brown; primaries, secondaries, and rectrices blackish brown, their shafts black, and outer edges reddish brown; wing-coverts reddish brown with light shafts. A male measures: Wing, 70; tail, 47; culmen from base, 19; bill from nostril, 11; tarsus, 27. A female, wing, 70; tail, 46; culmen from base, 20; bill from nostril, 11; tarsus, 27.

"Common in Basilan. Lives on the ground, or near it, and sometimes perches on stones, fallen trees, or roots. Note not in the least like that of *P. falcata*. *Ptilocichla basilanica* always seems loth to take flight, and one can readily secure it by following it carefully as it runs along the ground, uttering its complaining note at frequent intervals. Sooner or later one is sure to catch sight of it in some little open place, though the protective coloring makes it hard to see.

"Twenty-two males average: Length, 155; wing, 73; tail, 48; culmen, 20; tarsus, 27; middle toe with claw, 26. Fifteen females, length, 150; wing, 71; tail, 45; culmen, 20; tarsus, 26; middle toe with claw, 25. Iris chocolate-brown; legs, feet, and nails light brown; upper mandible black, lower ashy gray." (*Bourns and Worcester MS.*)

501. PTILOCICHLA MINDANENSIS Steere.

MINDANAO GROUND BABBLER.

Ptilocichla (?) *mindanensis* STEERE, List Birds and Mams. Steere Exped. (1890), 18.
Ptilocichla mindanensis SHARPE, Hand-List (1903), 4, 40; MCGREGOR and WORCESTER, Hand-List (1906), 81.
Ptilopyga mindanensis BLASIUS, Jour. für Orn. (1890), 146.

Mindanao (*Steere Exp., Platen, Bourns & Worcester, Celestino*).

"Above fulvous-brown; feathers of head narrowly edged with black; feathers of back showing indistinct shaft-stripes; below much as in *P. basilanica* which it equals in size also. It is readily separated by the fulvous-brown of the head and the uniform fulvous of the back." (*Steere.*)

"Habits similar to those of *P. basilanica.* Our specimens all show the differences pointed out by Dr. Steere between the Mindanao and Basilan birds, and we consider the two birds to belong to distinct species.

A male from Mindanao measures: Length, 174; wing, 75; tail, 51; culmen, 22; tarsus, 27; middle toe with claw, 27. A female, length, 152; wing, 69; tail, 46; culmen, 20; tarsus, 27; middle toe with claw, 26. Iris light yellow or nearly white; legs, feet, and nails drab; upper mandible black, lower gray." (*Bourns and Worcester MS.*)

502. **PTILOCICHLA MINUTA** Bourns and Worcester.

LESSER GROUND BABBLER.

Ptilocichla minuta BOURNS and WORCESTER, Minnesota Acad. Nat. Sci. Occ. Paper (1894), 1, 24; GRANT, Ibis (1897), 230; SHARPE, Hand-List (1903), 4, 40; MCGREGOR and WORCESTER, Hand-list (1906), 81.

Samar (*Bourns & Worcester, Whitehead*); Leyte (*Whitehead*).

"*Sexes alike.*—Feathers of the head and nape black, with heavy rufous-brown shaft-lines; feathers of back and upper wing-coverts bright reddish brown, with conspicuous, nearly white shaft-markings for their entire length; tips of feathers black; the elongated feathers of back, which reach to tail-coverts, with white shafts and white shaft-markings broad at base and narrowing at tip, edges and extreme tips of feathers being dark rich fulvous-brown; upper tail-coverts rufous-brown; tail-feathers fulvous-brown edged with rufous-brown; lores white; superciliary line white, extending as far as hind neck; ear-coverts fulvous with light shaft-stripes, the latter becoming rufous on hind neck, malar stripe black; chin and throat pure white; feathers of breast and abdomen have very broad white shaft-stripes, giving a streaked appearance to the under surface; feathers of flanks much elongated, light fulvous-brown with distinct white shaft-stripes, broadest at base; under tail-coverts colored like flanks; under surface of wing fulvous-brown, brighter on coverts.

"Readily distinguished from *P. basilanica* by having all the feathers of back, head, rump, and upper wing-coverts with prominent shaft-lines, by the darker color of the long feathers of the back, and by its much smaller size. Exceedingly rare. Length, 136; wing, 69; tail, 42; culmen, 19; tarsus, 24." (*Bourns and Worcester.*)

"Iris dark reddish brown; legs, feet, and nails dark brown; bill black, except base of lower mandible, which is yellow." (*Bourns and Worcester MS.*)

"'This bird is always found on the ground; when moving it does not hop like the thrush-tribe, but has a most decided walk like the starlings. Its note is a 'chic-chic-chic'; it is most shy and very difficult to obtain. Iris dark brown, tip of upper mandible black, lower light gray; feet brown.'—*J. W.*" (*Grant.*)

Genus ANUROPSIS Sharpe, 1883.

Bill from nostril less than one-half the tarsus; nostril with an overhanging membrane; rictal bristles weak, the longest less than bill from nostril; wing very short and rounded; tail very short and soft, not more than one-half the wing; legs and feet very large, when outstretched extending well beyond the end of tail; tarsus about equal to tail; body plumage soft and decomposed.

503. ANUROPSIS CINEREICEPS (Tweeddale).

ASHY-HEADED WOOD BABBLER.

Drymocataphus cinereiceps TWEEDDALE, Proc. Zool. Soc. (1878), 617.
Anuropsis cinereiceps SHARPE, Cat. Birds Brit. Mus. (1883), 7, 590; Hand-List (1903), 4, 41; MCGREGOR and WORCESTER, Hand-List (1906), 81.

Balabac (*Everett*); Palawan (*Everett, Lempriere, Whitehead, Platen, Bourns & Worcester, Celestino*).

Male.—Top of head and hind neck ashy gray, lighter on lores and ear-coverts; remainder of upper parts fulvous-brown, more rusty on outer webs of primaries and secondaries: chin, throat, and middle of breast and abdomen white; sides of breast, flanks, thighs, and crissum light tan or ocherous-brown, extending faintly across fore-breast. Length, 114; wing, 61; tail, 30; culmen from base, 18; bill from nostril, 11; tarsus, 27.

"*Adult female.*—(Puerto Princesa, Palawan, January, 1878; A. Everett; type of species). General color above dark fulvous-brown, with faintly indicated pale shaft-stripes to the feathers of the mantle; the plumage of the lower back and rump very full and lax, with dusky or silvery gray bases; lesser and median wing-coverts like the back, with the same pale shaft-lines; greater series dark fulvous-brown; quills dark brown internally, externally dark fulvous-brown, somewhat ashy on the outer webs of the primaries; tail-feathers dark fulvous-brown; crown of head dark ashy gray, the hind neck and sides of neck lighter ashy gray; lores and feathers round the eye ashy whitish; ear-coverts light ashy gray with whitish shaft-lines; cheeks white, with a narrow line of black along their upper margin; entire throat pure white, as also the entire abdomen; breast and sides of the body, thighs, and under tail-coverts light fulvous-brown, with paler shaft-lines on the feathers of the breast; axillars fulvous with white bases; under wing-coverts fulvous; quills dusky brown below, ashy fulvous along the edge of the inner web. 'Bill brownish gray, the mandible white; legs pallid, the front of the tarsi tinged brown; iris burnt sienna-orange.' (*A. H. Everett.*) Length, 144; culmen, 18; wing, 60; tail, 27; tarsus, 28. (Mus. R. G. Wardlaw-Ramsay)." (*Sharpe.*)

"Rare in the region collected in by us; a single male obtained. It measures: Length, 127; wing, 61; tail, 27; culmen, 20; tarsus, 27;

middle toe with claw, 23. Iris brown; legs, feet, and nails pale flesh-color; upper mandible black, lower nearly white." (*Bourns and Worcester MS.*)

Genus DASYCROTAPHA Tweeddale, 1878.

"Base of maxilla densely clothed with short feathers, space behind the eye naked; bill about the length of head, and formed as in *Mixornis*; wing lengthened, longer than tail; first primary half the length of the second, which is a fifth shorter than the third; third a little shorter than the fourth, which is equal to fifth and sixth; tail moderate and square; tarsus strong; hallux with claw stout and long; digits short and slender; outer a little longer than inner." (*Tweeddale.*)

504. **DASYCROTAPHA SPECIOSA** Tweeddale.

BEAUTIFUL ROUGHTEMPLE.

Dasycrotapha speciosa TWEEDDALE, Proc. Zool. Soc. (1878), 114, pl. 9; SHARPE, Cat. Birds Brit. Mus. (1883), 7, 574; Hand-List (1903), 4, 51; MCGREGOR and WORCESTER, Hand-List (1906), 81.

Negros (*Everett, Steere Exp., Bourns & Worcester, Celestino*).

Male.—"Head crested; forehead with dense short plumes covering the base of the maxilla; circle round the eye, whole space before the eye, tuft on the side of the base of mandible, chin and uppermost part of throat pure lemon-yellow; crown of the head black; post occipital plumes yellow; nape yellowish green tipped with black; a lengthened tuft of plumes springing from above the eye bright orange; a line immediately below this tuft black; a tuft of stiff decomposed feathers springing from below the eye and extending over the ears white or grayish white; an irregular band across the throat black; dorsal feathers gray with light olive-green tips and white shafts; uropygium yellowish green; upper tail-coverts the same, tinged with rufous; lower throat and upper breast bright yellow, most of the feathers with black terminal drops; lower breast and rest of under plumage duller yellow tinged with green on the flanks; quills brown margined with yellowish olive-green, inner margin of quills pale yellow; wing-coverts dull olive-green, carpal edge and wing-lining yellow; tail dull rufous. 'Iris crimson; bill orange-yellow.' (*Everett.*) Wing, 66; tail, 60; tarsus, 22; culmen, 19." (*Tweeddale.*)

"Only three specimens of this rare bird were obtained by us. They were all secured in the deep forest, where they were feeding among the leaves of low trees. We feel quite confident that we saw *D. speciosa* in Panay on one occasion, but the one individual observed escaped us. Three specimens average as follows: Wing, 66; tail, 57; culmen, 17; tarsus, 18; middle toe with claw, 16. Iris reddish brown; legs and feet olive-yellow, nails nearly white; bill yellow." (*Bourns and Worcester MS.*)

Genus ZOSTERORNIS Grant, 1894.

Bill slender and pointed; rictal bristles small, less than bill from nostril; nasal opening oval with a large overhanging membrane; wing pointed, not greatly curved, and slightly exceeding the tail; rectrices well developed; tarsi and feet slender, and moderate in length; tarsus about twice the bill from nostril. Some species in this genus resemble species of *Mixornis*, but in the latter there is no flap above the nasal opening and the feathers of the back are long and fluffy.

"This genus is most nearly allied to *Cyanoderma*, but there is no naked space around the eyes, which, on the contrary, are encircled by a ring of short white feathers perfectly similar to that of a true *Zosterops*. From *Mixornis* it differs in having the nostrils long and covered by a large membrane. The tail is composed of twelve feathers. The fifth primary is slightly longer than the fourth and sixth; first, short, half the length of the second." (*Grant.*)

Species.

a^1. Outer tail-feathers not tipped with white.
  b^1. Under parts heavily streaked with black........................ **striatus** (p. 527)
  b^2. Under parts not heavily streaked with black.
    c^1. Larger; wing, 60 mm. or more; forehead and sides of head chestnut; crown gray; under parts light yellow........................ **whiteheadi** (p. 528)
    c^2. Smaller; wing, 56 mm. or less; forehead and sides of face not chestnut; under parts white.
      d^1. Forehead and crown brown with pale shaft-stripes; upper parts olive-brown with indistinct pale shafts; throat and chest gray with white shaft-stripes; rest of under parts white........................ **pygmæus** (p. 529)
      d^2. Head, neck, and breast reddish brown with white shaft-stripes. **plateni** (p. 530)
a^2. Outer tail-feathers widely tipped with white.
  b^1. Forehead, crown, chin, and throat not uniform in color.
    c^1. Forehead and crown red-brown or auburn........................ **capitalis** (p. 530)
    c^2. Forehead and crown black.
      d^1. Chin and throat lemon-yellow with a patch of dull reddish brown on each side........................ **nigrocapitatus** (p. 531)
      d^2. Chin and throat lemon-yellow, washed with reddish brown. **affinis** (p. 532)
  b^2. Forehead, crown, chin, and throat golden yellow; back and under parts washed with lighter yellow........................ **dennistouni** (p. 529)

505. ZOSTERORNIS STRIATUS Grant.

STRIPED TREE BABBLER.

Zosterornis striatus Grant, Bull. Brit. Orn. Club (1894), 4, 2; Ibis (1895), 111, pl. 4, fig. 1; Whitehead, Ibis (1899), 222 (habits).

Zosterornis striata Sharpe, Hand-List (1903), 4, 51; McGregor and Worcester, Hand-List (1906), 82.

Luzon (*Whitehead*).

"*Male and female adult.*—In general appearance this new species resembles *Mixornis montana* Sharpe, from Mount Kina Balu, but it is readily recognizable as forming a second species of the genus *Zosterornis* by the shape of the nostrils and the peculiar ring of white feathers which surrounds the eye, as well as the absence of rufous-brown or dark chestnut on the wings so characteristic of the genus *Mixornis*.

"The general color of the upper parts is dull olive, tinged with brownish on the upper tail-coverts: quills dark brown, edged on the outer web with olive, and on the inner with yellowish white. A marked ring of white plumes surrounds the eye; lores and fore part of cheeks whitish, tinged with yellow; a well-marked black eyebrow stripe from the nostril to the posterior margin of the orbit, and a second less distinct band below the eye: hind cheek and ear-coverts dull olive like the crown; chin and throat uniform white, tinged with yellow and bordered on either side by a black malar stripe; rest of the under parts yellowish white, each feather with a wide black shaft-stripe; tail-feathers brown, margined with olive towards the edges of the outer webs.

"*Types of the species.*—Male adult: Length, 140: wing, 60; tail, 52: tarsus, 18; culmen, 16. Female adult: Length, 140: wing, 61; tail, 52; tarsus, 18; culmen, 16." (*Grant.*)

The striped tree babbler is known only from the mountains of northern Luzon.

506. **ZOSTERORNIS WHITEHEADI** Grant.

WHITEHEAD'S TREE BABBLER.

Zosterornis whiteheadi GRANT, Bull. Brit. Orn. Club (1894), 3, 40; Ibis (1894); 510, pl. 15, fig. 1; WHITEHEAD, Ibis (1899), 222 (habits); SHARPE, Hand-List (1903), 4, 51; MCGREGOR and WORCESTER, Hand-List (1906), 82.

Luzon (*Whitehead, Worcester, McGregor*).

Adult (*sexes alike*).—Forehead, chin, entire side of head, and superciliary stripe cinnamon-rufous; a ring of white around eye; top of head dark gray; remainder of upper parts dull olive-green; under parts greenish yellow; middle of abdomen lemon-yellow; wing- and tail-feathers brown, edged with olive-green; inner webs of quills ocherous fawn; wing-lining pale yellow. Iris brown; bill black; legs dull greenish; nails light flesh-color. Length, about 155. A male measures: Wing, 66; tail, 59; culmen from base, 17; bill from nostril, 10; tarsus, 23. A female, wing, 64; tail, 65; culmen from base, 17; bill from nostril, 10; tarsus, 22.

Young.—Similar to the adult, but the colors duller and the gray of crown passing gradually into the olive of back; flanks and crissum washed with cinnamon.

Whitehead's tree babbler is very abundant in the vicinity of Baguio, Benguet Province, Luzon.

507. **ZOSTERORNIS DENNISTOUNI** Grant.

YELLOW TREE BABBLER.

Zosterornis dennistouni GRANT, Bull. Brit. Orn. Club (1895), 5, 2; Ibis (1896), 118, pl. 3, fig. 2; (1897), 234 (key to species); WHITEHEAD, Ibis (1899), 223, (habits); SHARPE, Hand-List (1903), 4, 51; McGREGOR and WORCESTER, Hand-List (1906), 82.

Luzon (*Whitehead*).

"*Adult male and female.*—Forehead and crown shining golden yellow, shading into yellowish gray on the back and sides of the head and neck, and greenish gray on the back and rest of the upper parts, all the feathers with narrow whitish shaft-stripes; wings dark brown, the quills margined with yellowish brown; chin and throat golden yellow, but paler than the crown, and shading into whitish yellow on the breast and rest of under parts; sides and flanks washed with greenish gray; tail-feathers brownish black, margined on the outer webs with yellowish brown, the five outer pairs tipped with white, the tips increasing in width towards the outer pair, which has also the greater part of the outer web white.

"*Immature birds* resemble the adult, but the golden yellow forehead is represented by yellowish brown feathers with pale middles, the quills are edged with rufous, and the under parts are white slightly tinged with yellow." (*Grant.*)

Grant's measurements of the types, converted to millimeters, are: Male, length, 140; wing, 68; tail, 61; culmen, 18; tarsus, 19; female, length, 135; wing, 66; tail, 56; culmen, 18; tarsus, 19.

The yellow tree babbler is resident in the vicinity of Cape Engaño, northern Luzon.

508. **ZOSTERORNIS PYGMÆUS** Grant.

PYGMY TREE BABBLER.

Mixornis plateni BOURNS and WORCESTER, Minnesota Acad. Nat. Sci. Occ. Papers (1894), 1, 58, (not of Blasius).

Zosterornis pygmæus GRANT, Bull. Brit. Orn. Club (1896), 6, 18; Ibis (1897), 233, pl. 6, fig. 1; WHITEHEAD, Ibis, (1899), 223 (habits).

Zosterornis pygmæa SHARPE, Hand-List (1903), 4, 51; McGREGOR and WORCESTER, Hand-List (1906), 82.

Leyte (*Whitehead*); Samar (*Bourns & Worcester, Whitehead*).

"*Adult male and female.*—General color above brownish olive, brownest on the crown, each feather of which has a narrow whitish shaft-stripe; lores whitish; feathers above and below the eye blackish with white shafts; chin whitish; throat, fore neck, and chest gray with white middles to the feathers, most marked on the throat; breast and belly white, shading into grayish on the sides, flanks, and under tail-coverts. 'Iris bicolored, outer ring red, inner pale yellow; bill slate-blue, black at tip;

feet slate-gray.' (*Whitehead.*) Length, 102; culmen, 13; wing, 53; tail, 39; tarsus, 16.5." (*Grant.*)

509. ZOSTERORNIS PLATENI (Blasius).

PLATEN'S TREE BABBLER.

Mixornis plateni BLASIUS, Journ. für Orn. (1890), 147.
Zosterornis plateni GRANT, Ibis (1897), 233, (key to species); SHARPE, Hand-List (1903), 4, 51; MCGREGOR and WORCESTER, Hand-List (1906), 82.

Mindanao (*Platen*).

Diagnosis.—Similar to *Zosterornis capitalis*, but noticeably smaller.

Description of female.—Above olive-brown; rump and tail-coverts more rust-colored; upper back with white shaft-stripes; entire head above and on sides, neck, and breast red-brown, with fine white shaft-stripes; chin and throat more blackish with broad white shaft-stripes; tail-feathers uniformly brown, washed with olive-brown on the outer webs; tail-feathers above and upper wing-coverts similar; under wing-coverts and axillars whitish. Length, 120; wing, 55; tail, 47; culmen, 10; tarsus, 15.*

510. ZOSTERORNIS CAPITALIS (Tweeddale).

RUFOUS-CROWNED TREE BABBLER.

Mixornis capitalis TWEEDDALE, Ann. and Mag. Nat. Hist. (1877), **20**, 535; Proc. Zool. Soc. (1878), 110, pl. 7, fig. 2; SHARPE, Cat. Birds Brit. Mus. (1883), **7**, 582.
Zosterornis capitalis GRANT, Ibis, (1897), 233, (key to species); SHARPE, Hand-List (1903), 4, 51; MCGREGOR and WORCESTER, Hand-List (1906), 82.

Basilan (*Everett, Steere Exp., Bourns & Worcester, McGregor*); Dinagat (*Everett*); Leyte (*Everett*); Mindanao (*Platen, Goodfellow, Celestino*); Panaon (*Everett*).

Adult (*male and female*).—Forehead and crown rufous-chestnut or reddish auburn, some of the feathers with yellowish shaft-stripes; occiput, back, and lesser and median wing-coverts dark brown with pale yellow shaft-stripes; rump and tail-coverts slightly olivaceous and without shaft-stripes; lores, ear-coverts, and cheeks ashy with whitish shaft-stripes; chin and throat chestnut, washed with light yellow; remainder of under parts very pale yellow; sides and flanks gray; wings brown, the outer webs edged with lighter brown, inner webs edged with white; rectrices brown, all but the middle pair tipped with white which increases on each pair toward the outermost, the outer webs of which are entirely white. A male from Mindanao measures: Length, 147; wing, 69; tail, 60; culmen from base, 16; bill from nostril, 10; tarsus, 18. A female, wing, 67; tail, 60; culmen from base, 15; bill from nostril, 9.5; tarsus, 18.5.

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* The original description of *Mixornis* (=*Zosterornis*) *plateni* follows:

"Mizornis plateni, bedeutend kleiner als M. capitalis, mit welcher Form die Art, besonders von der Oberseite gesehen, eine gewisse Aehnlichkeit in der Färbung bsitzt.

Oberseite olivenbraun, Bürzel und Schwanzdeckfedern mehr rostfarben, am Vorderrücken weisse Schaftstriche. Ganzer Kopf, oben und an den Seiten, Nacken und Brust rothbraun mit feinen weissen Schaftstrichen. Kinn Kehle mehr schwärzlich mit breiteren weissen Schaftflecken. Schwanzfedern einfarbig braun, an der Aussenfahen olivenfarben verwaschen. Ebenso die schwanz federn oberseits und die oberen Flügeldeckfedern. Untere Flugeldeckfedern und Achselfedern weisslich. Masse: ♀ Long. tot. 12 cm. Ala 5.5 cm. Caud. 4.7 cm. Culmen 1.0 cm. Tarsus 1.5 cm. Type: Museum Brunsvicense."

"Not uncommon in the deep forest of Basilan, where it is usually found in company with *Macronous*, *Hypothymis*, and other birds. Seventeen males average: Length, 143; wing, 67; tail, 61; culmen, 18; tarsus, 17; middle toe with claw, 16. Eleven females, length, 141; wing, 67; tail, 60; tarsus, 18; middle toe with claw, 16; culmen, 16. Iris reddish brown; legs and feet drab, with a greenish tinge; feet and nails yellowish; bill almost black." (*Bourns and Worcester MS.*)

511. ZOSTERORNIS NIGROCAPITATUS (Steere).

BLACK-CROWNED TREE BABBLER.

Mixornis nigrocapitatus STEERE, List Birds and Mams. Steere Exped. (1890), 17.

Zosterornis nigrocapitatus GRANT, Ibis (1897), 232; WHITEHEAD, Ibis (1899), 223 (habits).

Zosterornis nigrocapitata SHARPE, Hand-List (1903), 4, 51; MCGREGOR and WORCESTER, Hand-List (1906), 82 (part).

Bohol (*McGregor*); Leyte (*Steere Exp.*, *Whitehead*); Samar (*Steere Exp.*, *Bourns & Worcester*, *Whitehead*).

Adult (*male and female*).—Forehead, lores, and crown black, on each side behind eye a small patch of dark chestnut; remainder of upper parts ashy gray with lighter shaft-stripes; tail-coverts slightly olivaceous; ear-coverts and sides of head and neck like the back; chin and throat clear saffron-yellow, extending faintly onto fore breast; a short stripe of dark chestnut on each side of throat; middle of lower breast and abdomen and tail-coverts white; sides, flanks, and thighs gray; quills brown, externally edged with dull olivaceous, internally with white; median and lesser coverts like the back; rectrices brown, all but the middle pair tipped with white which increases on each pair toward the outermost, the outer webs of which are entirely white. Length, about 145. A male from Bohol measures: Wing, 68; tail, 62; culmen from base, 14.5; bill from nostril, 9; tarsus, 17. A female, wing, 65.5; tail, 59; culmen from base, 15; bill from nostril, 9.5; tarsus, 17.

"Professor Steere originally described this bird as a *Mixornis*, but the structure of the nasal opening, as well as the shape of the wing, clearly shows that it is a species of *Zosterornis,* most nearly allied to *Z. dennistouni* Grant from Luzon. Young birds have the top of the head brownish and the interscapular region darker than in the adult, and both these parts have well-defined whitish shaft-stripes; the color of the chin and throat is also paler than in the adult, while the outer webs of the primary-quills are pale sandy.

"(The black-headed babbler is common in Samar and Leyte, and frequents the higher branches of the undergrowth. Iris two-colored, having an outer ring of red and an inner one of pale yellow; bill black; legs dull lead-blue.—*J. W.*)" (*Grant.*)

"Fairly common in the deep forest of Samar. Never seen in any other locality by us. Seven males average: Length, 140; wing, 66; tail, 59; culmen, 17; tarsus, 17; middle toe with claw, 16. Five females, length, 139; wing, 67; tail, 57; culmen, 16; tarsus, 17; middle toe with claw, 16. Iris varies from light brown to brick-red, in young birds it is dull yellow; legs and feet light olive-brown, often with a wash of yellow; nails brown to yellow; bill black. Breeding in July and August." (*Bourns and Worcester MS.*)

512. ZOSTERORNIS AFFINIS McGregor.

RUFOUS-CHINNED TREE BABBLER.

Zosterornis nigrocapitata McGregor and Worcester, Hand-List (1906), 82, (part).

Zosterornis affinis McGregor, Phil. Journ. Sci. (1907). 2, sec. A, 292.

Luzon (*Celestino*).

Male (*type*).—Forehead and crown black, the shafts obscurely whitish; a small patch of chestnut behind each eye next to the black crown; general color above dull olive-gray, feathers of neck and mantle with conspicuous, narrow, whitish shaft-lines; rump uniform; a narrow ring around eye, ear-coverts, and cheeks gray with pale yellow shaft-lines; chin, throat, and fore breast pale lemon-yellow, the chin heavily washed with chestnut-rufous which becomes gradually less on throat and disappears on breast; middle of breast and abdomen very pale yellow, their sides gray, overlaid with a faint yellow wash; under tail-coverts pale yellow; wings blackish brown, outer edges of quills lighter and inner edges whitish; median and lesser coverts with light shaft-lines; upper tail-coverts dull olive-brown; rectrices dark brown, except the outermost feathers, their outer webs edged with olive-brown, all but the center pair tipped with white, increasing in extent toward the outermost feather which has its outer web almost entirely white. Length, 152; wing, 68; tail, 61; culmen from base, 17; bill from nostril, 10; tarsus, 19.

This species is similar to *Z. nigrocapitatus,* but is slightly larger and the back is distinctly olivaceous; the reddish brown of chin and upper throat are diffused over these parts instead of forming a patch on each side. The only known specimen, a male, was taken in Bataan Province, Luzon, December 3, 1904.

Genus MIXORNIS "Hodgson" Blyth, 1842.

Rictal bristles nearly as long as bill from nostril; culmen from base a little shorter than tarsus; nasal opening oval and with no overhanging membrane; feathers of lower back long, decomposed, and hair-like, without stiff shafts, the longest reaching to tips of tail-coverts; entire body plumage soft and decomposed.

Species.

a^1. Chin and throat light yellow, narrowly striped with black........ **woodi** (p. 533)
a^2. Chin and throat white, broadly striped with black........ **cagayanensis** (p. 534)

513. MIXORNIS WOODI Sharpe.

PALAWAN TIT BABBLER.

Mixornis woodi Sharpe, Trans, Linn. Soc. 2d. ser. Zool. (1877), 1, 331; Cat. Birds Brit. Mus. (1883), 7, 577; Hand-List (1903), 4, 53; Oates and Reid, Cat Birds' Eggs (1905), 4, 49, pl. 2, fig. 9; McGregor and Worcester, Hand-List (1906), 82.

Balabac (*Everett*); Palawan (*Steere, Everett, Whitehead, Platen, Steere Exp., Bourns & Worcester, McGregor, White, Celestino*).

Adult (*sexes similar*).—Forehead, lores, cheeks, ear-coverts, and feathers around eye ashy gray, more or less streaked with black; crown dark chestnut; occiput, nape, sides of crown behind eye, sides of neck, and back olive-gray; long feathers of lower back dark ocherous brown; chin white; throat and fore breast light sulphur-yellow with narrow black shaft-lines; remainder of under parts light olive-gray, more yellowish along middle of breast and abdomen; wings, tail, and upper tail-coverts rusty chestnut; primaries and secondaries edged with white on inner webs; rectrices with narrow obsolete bars. Length, about 140. A male measures: Wing, 60; tail, 55; culmen from base, 14; bill from nostril, 8.5; tarsus, 20. A female, wing, 62; tail, 56; culmen from base, 16; bill from nostril, 9; tarsus, 21.

"Very common in the vines and thickets of forest and second growth in Palawan. Not found by us in the Calamianes. Four males average: Length, 137; wing, 61; tail, 56; culmen, 16; tarsus, 18; middle toe with claw, 18. Seven females, length, 133; wing, 58; tail, 52; culmen, 16; tarsus, 17; middle toe with claw, 17." (*Bourns and Worcester MS.*)

514. MIXORNIS CAGAYANENSIS Guillemard.

CAGAYAN SULU TIT BABBLER.

Mixornis cagayanensis GUILLEMARD, Proc. Zool. Soc. (1885), 419, pl. 25; SHARPE, Hand-List (1903), 4, 53; MCGREGOR and WORCESTER, Hand-List (1906), 82.

Cagayan Sulu (*Guillemard*).

Male.—"Above grayish olive: the forehead grayish, with black shafts to the feathers, the occipital region with a tinge of chesnut; feathers round the eye and in the parotic region ashy; throat and chin pure white, broadly striped with black; breast pale yellow, also broadly striped, shading off below into the yellowish olive-gray of the crissum and under tail-coverts; thighs with a slight reddish tint; under wing-coverts white; wings chestnut; tail brown with traces of dark barring. Iris pale yellow; bill and feet lead-colored. Length, about 145; wing, 64; tail, 60; bill from gape, 18; tarsus, 20.

"This species, which was common in low bushes in the more open situations in the island, is at once distinguishable from *M. bornensis* by the upper surface being of an ashy olive-brown instead of chestnut. It has a loud note of alarm, is very restless in its movements, and apparently rarely flies far off the ground." (*Guillemard.*)

Genus MACRONOUS Jardine and Selby, 1835.

Rictal bristles about as long as bill from nostril; nasal opening oval and not protected by a flap; culmen from base less than tarsus; long feathers of the back reaching to or beyond the tips of tail-coverts, their shafts stiff and usually white; feathers on sides of body long, decomposed, and hair-like; most of the plumage loose and decomposed. *Macronous* resembles *Mixornis* in its long dorsal feathers, but differs from the latter in having the shafts of these feathers thick and stiff. *Zosterornis* differs from both of these genera in having shorter dorsal plumes and in having a flap above the nasal opening.

Species.

- a^1. Entire top of head black with conspicuous white shaft-stripes.
  - b^1. Throat and breast white, edges of the feathers ocherous buff or brown. **striaticeps** (p. 535)
  - b^2. Throat and breast washed with ocherous brown or sparrow-brown.
    - c^1. Slightly larger; lighter in color and with lighter markings. **mindanensis** (p. 535)
    - c^2. Slightly smaller; much darker and with heavier markings throughout. **montanus** (p. 536)
- a^2. Entire top of head brown with a few narrow shaft-stripes of white. **kettlewelli** (p. 537)

515. MACRONOUS STRIATICEPS Sharpe.

BASILAN TIT BABBLER.

Macronus striaticeps SHARPE, Trans. Linn. Soc. 2d. ser. Zool. (1877), 1, 331; Cat. Birds Brit. Mus. (1883), 7, 584; Hand-List (1903), 4, 53; OATES and REID, Cat. Birds' Eggs (1905), 4, 50; MCGREGOR and WORCESTER, Hand-List (1906), 82.

Basilan (*Steere, Steere Exp., Bourns & Worcester, McGregor*).

Adult (*male and female*).—Entire top and sides of head and neck black, streaked with white; lores white; remainder of upper parts, including exposed edges of wing- and tail-feathers, rusty tan-brown; feathers of mantle and back with lighter shafts; chin and throat white; feathers of breast and abdomen white with gray or brown edges, slightly olivaceous on fore breast; flanks and tail-coverts ocherous buff with lighter shafts; thighs ocherous buff; wing-lining and inner edges of quills dark buff. Length, 140 to 144. A male measures: Wing, 60; tail, 54; culmen from base, 16; bill from nostril, 10; tarsus, 20. A female, wing, 60; tail, 54; culmen from base, 15.5; bill from nostril, 10; tarsus, 21.

"The sexes are alike in size and color. Young birds are rather more rufescent below and have the streaks on the head tinged with rufous. Both specimens collected by Doctor Steere had the iris hazel, but Mr. Everett gives the iris as white in all those obtained by him." (*Sharpe.*)

"This species seems to be confined to the Island of Basilan, where it is extremely common in the forest and second growth. It works about the dense tangle of vines, and usually keeps within five to ten meters of the ground. Thirteen males average: Length, 134; wing, 60; tail, 54; culmen, 16; tarsus, 18; middle toe with claw, 18. Eight females, length, 130; wing, 58; tail, 53.5; tarsus, 18; middle toe with claw, 17.5. Iris very dark brown; upper mandible black, lower drab; legs and feet drab." (*Bourns and Worcester MS.*)

516. MACRONOUS MINDANENSIS Steere.

MINDANAO TIT BABBLER.

Macronus mindanensis STEERE, List Birds and Mams. Steere Exped. (1890), 17; GRANT and WHITEHEAD, Ibis (1898), 240 (eggs); WHITEHEAD, Ibis (1899), 223 (habits); SHARPE, Hand-List (1903), 4, 54; MCGREGOR and WORCESTER, Hand-List (1906), 82.

Bohol (*McGregor*); Dinagat (*Everett*); Leyte (*Steere Exp., Whitehead*); Mindanao (*Everett, Koch & Schadenberg, Steere Exp., Bourns & Worcester, Goodfellow, Celestino, Clemens*); Samar (*Steere Exp., Bourns & Worcester, Whitehead*).

Adult.—Similar to *Macronous striaticeps*, but throat, breast, and sides of head washed with ocherous buff or fulvous giving these parts a soiled appearance. A male from Bohol measures: Wing, 60; tail, 53; culmen from base, 16: bill from nostril, 10; tarsus, 20. A female from Bohol, wing, 59; tail, 53; culmen from base, 15; bill from nostril, 9; tarsus, 19.

"Common in Mindanao and Samar. Habits exactly like those of *M. striaticeps.* Four males average: Length, 144; wing, 60; tail, 56; culmen, 16.5; tarsus, 18.5; middle toe with claw, 19. Four females, length, 135; wing, 55; tail, 54; culmen, 14.7; tarsus, 19; middle toe with claw, 18.5. Iris light yellow-white; legs, feet, and nails drab; bill nearly black, the lower mandible slightly lighter than upper.

"It is remarkable that the differences between *M. striaticeps* and *M. mindanensis* should have escaped the notice of naturalists until they were pointed out by Doctor Steere. The two species are quite distinct, and can be distinguished with absolute certainty." (*Bourns and Worcester MS.*)

"Mr. Whitehead found a nest of this species [near Paranas, Samar, June 15, 1896] containing three eggs. These were in such an advanced stage of incubation that the young birds hatched out a few hours after the eggs were placed in his room. Eggs pure white, thickly speckled towards the larger end with dark red. The nest, a large ball of bamboo leaves and loosely constructed, was placed close to the ground in old forest." (*Grant and Whitehead.*)

517. MACRONOUS MONTANUS (Mearns).

MOUNTAIN TIT BABBLER.

Macronous mindanensis montanus MEARNS, Proc. Biol. Soc. Wash. (1905), 18, 4.

Macronus montanus MCGREGOR and WORCESTER, Hand-List (1906), 82.

Tah-gó-saa or *tah-go-say'-ahn*, Bagobo; *tar-man'-op*, Moros of Pantar and Lake Lanao.

Mindanao (*Mearns*).

Adult male and female.—Similar to *Macronous mindanensis mindanensis,* but very much darker with heavier markings throughout; the dark shaft-streaks are increased in area and intensity; the blackish feathering of the upper side of the head occupies more of the nape; and the back and rump are prout's brown instead of raw umber; the under parts are dark from the throat backward, the flanks being dark isabella instead of clay-color. This mountain form (from Pantar at 610 meters and Mount Apo at 1,220 meters) is slightly smaller than the subspecies *mindanensis.* It is still farther removed from *Macronous striaticeps* Sharpe from the Island of Basilan." (*Mearns.*)

518. MACRONOUS KETTLEWELLI Guillemard.

KETTLEWELL'S TIT BABBLER.

Macronus kettlewelli GUILLEMARD. Proc. Zool. Soc. (1885), 262, pl. 18, fig. 2; SHARPE, Hand-List (1903), 4, 54; MCGREGOR and WORCESTER, Hand-List (1906), 82.

Bongao (*Everett*); Sulu (*Guillemard, Bourns & Worcester*); Tawi Tawi (*Everett, Bourns & Worcester*).

Adult.—Differs from the other Philippine species in having the upper parts nearly uniform brown; shafts whitish; forehead blackish with narrow white shaft-lines; tail and upper tail-coverts pale chestnut; under parts nearly uniform pale fawn; sides of throat and body faintly lined with white: webs of the long dorsal feathers partly white next to the white shafts. Length, about 140; wing, 63; tail, 70; bill, 15; tarsus, 24.*

"Rare in Sulu, very common in Tawi Tawi. Found in the forest working in tangled herbage, like the other Philippine members of the genus. Fifteen males average: Length, 150; wing, 64; tail, 61; culmen, 18.5; tarsus, 23; middle toe with claw, 22. Eight females, length, 155; wing, 62; tail, 59; culmen, 18; tarsus, 23; middle toe with claw, 21. Iris green; legs and feet light brown, washed with yellow; nails light brown; upper mandible black, lower gray." (*Bourns and Worcester MS.*)

Genus LEONARDINA Mearns, 1905.

"Bill somewhat depressed, broader than high at base, higher than broad at anterior border of nostrils, equal in height and breadth at posterior edge of nostrils; culmen strongly ridged, curved from base; maxilla with a subterminal notch; nostrils apparently elongate-oval; distance between anterior angle of nostril and tip of bill equal to the length of the hind toe without claw; rictal bristles strongly developed: length of skull equal to that of tarsus; length of tarsus contained two and one-third times in that of wing; tarsus booted; hind toe with claw less than half the length of tarsus; wing and tail about equal; wing rounded, the first primary half as long as the third; tail moderate, graduated, with feathers somewhat pointed, and webs not decomposed; plumage full and soft." (*Mearns.*)

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* The original description of *Macronous kettlewelli* follows: "Brunneus; dorsi plumis filiformibus, elongatis, versus basin nigricantibus; rachide, et partibus plumæ rachidi adjacentibus, albidis; alis fulvescenti-brunneis, exterius pallidioribus; supracaudalibus caudaque pallide castaneis; pileo dorso concolori, rachidibus plumarum albidis; fronte nigricante, magis distincte striata; superciliis, loris et regione parotica nigricantibus, albo lineatis; genis et corpore toto subtus pallide cervinis; hypochondriis brunnescentibus; gula summa et abdomine medio albicantibus; gutture et corporis lateribus vix albido lineatis; subalaribus pectori concoloribus; iride smaragdinea; rostro et pedibus brunneis. Long. tot. circa 0.140 m; al. 0.063 m; caud. 0.070 m; rostr. 0.015 m; tars. 0.024 m." (*Guillemard.*)

519. **LEONARDINA WOODI** Mearns.

WOOD'S BAGOBO BIRD.

Leonardia woodi MEARNS, Proc. Biol. Soc. Wash. (1905), **18**, 2.
Leonardina woodi MEARNS, Proc. Biol. Soc. Wash. (1905), **18**, 88; MCGREGOR and WORCESTER, Hand-List (1906), 83.

Doo-roogh-bah-long, Bagobo of Mount Apo.
Mindanao (*Mearns*).

"*Type* (*adult male*).—Third primary equal to ninth; fifth, sixth, and seventh subequal and longest. Upper parts bistre, washed with burnt umber on lower back, rump, and upper tail-coverts; tail blackish seal-brown; the feathers of the rump, which are very long and soft, have concealed white spots; sides of head and neck (including lores and ear-coverts), breast, and abdomen slate-gray, the latter washed with white; sides gray washed with burnt umber, particularly on the flanks, some of the feathers with concealed white spots; thighs gray washed with burnt umber; under tail-coverts tawny olive, the longest ochraceous; chin and throat white. Iris reddish brown; bill black; feet and claws plumbeous. Length, 205; alar expanse, 280; wing, 90; tail, 87; bill, measured from nostril, 10; culmen, 16; tarsus, 38; middle toe and claw, 27." (*Mearns.*)

The type and only known specimen was taken on Mount Apo, Mindanao, at 1,220 meters altitude.

Subfamily BRACHYPTERYGINÆ.

Tarsus slender; plumage normal, the feathers of back not lengthened; sexes unlike in colors.

Genus BRACHYPTERYX Horsfield, 1821.

Bill small and slender; rictal bristles weak; wing and tail moderate; tarsus long and slender, equal to more than one-half the tail and to about three times the bill from nostril. Sexes very unlike in colors; male with a concealed eyebrow-patch; female with head and neck brown.

Species.

a^1. Head, neck, and throat slate-blue like the rest of the plumage (males).
  b^1. Smaller; throat and top of head dark slate.................. **poliogyna** (p. 539)
  b^2. Larger; throat and top of head black.
    c^1. Smaller .... **brunneiceps** (p. 539)
    c^2. Larger; no grayish white on abdomen.
      d^1. White spot above the eye larger and not entirely concealed.
        mindanensis (p. 540)
      d^2. White spot above the eye minute and wholly concealed.
        malindangensis (p. 540)

a^2. Head, neck, and throat rusty brown, contrasting with the rest of the plumage (females).
  b^1. Crown lighter; chin and throat lighter.............................. **poliogyna** (p. 539)
  b^2. Crown darker; chin and throat deeper in color; belly not paler than breast.
    c^1. Smaller, tail shorter.. **brunneiceps** (p. 539)
    c^2. Larger, tail longer; abdomen washed with brownish gray.
      d^1. Color much lighter.. **mindanensis** (p. 540)
      d^2. Color much darker; russet of front of head intensified to almost a burnt umber and not extending backward beyond the eyes. **malindangensis** (p. 540)

520. BRACHYPTERYX POLIOGYNA Grant.

GRANT'S SHORTWING.

Brachypteryx poliogyna GRANT, Bull. Brit. Orn. Club (1895), 4, 40; Ibis (1895), 446, pl. 12, fig. 1; WHITEHEAD, Ibis (1899), 216 (habits); SHARPE, Hand-List (1903). 4, 56; MCGREGOR and WORCESTER. Hand-List (1906). 83.

Luzon (*Whitehead, McGregor*); Mindoro (*Whitehead*).

Male.—Most of the plumage dark slate-blue; middle of abdomen washed with gray; forehead, lores, ring around eye, jaw, and chin black; above each eye a concealed patch of soft silky white feathers; wings and tail black, the feathers edged with slate-blue; bend of wing white. Iris dark brown; bill, legs, and nails black. Length, 140; wing, 67; tail, 49; culmen from base, 14; bill from nostril, 9; tarsus, 28; middle toe with claw, 22.

Female.—Entire head, neck, chin, and throat umber or rusty brown, much darker on crown, lighter on chin and throat; remainder of plumage slaty blue, similar to the male, but lighter on the under parts and much grayer on abdomen. Length, 127; wing, 63; tail, 42; culmen from base, 15; bill from nostril, 8; tarsus, 30; middle toe with claw, 21.

521. BRACHYPTERYX BRUNNEICEPS Grant.

NEGROS SHORTWING.

Brachypteryx brunneiceps GRANT, Ibis (1896), 457; WHITEHEAD, Ibis (1899), 217 (habits); SHARPE, Hand-List (1903). 4, 56; MCGREGOR and WORCESTER. Hand-List (1906). 83.

Negros (*Whitehead*).

Diagnosis.—"The Negros shortwing is closely allied to *B. poliogyna*, which Mr. Whitehead discovered in the highlands of Lepanto, Luzon. The males in fact, are, as one would expect, very much alike, but the Negros bird has the top of the head and throat washed with black instead of dark slate. Between the females the differences are much more marked; the crown of the head in *E. brunneiceps* is much darker brown, much less strongly washed with sienna on the forehead; the chin and middle of the throat are much deeper in color, very little paler than the sides; and the general tone of the under parts is darker slate-blue, the belly being in no way paler than the breast. Adult male: Length, 127;

wing, 67; tail, 48; tarsus, 29. Adult female: Length, 132; wing, 67; tail, 48; tarsus, 29." (*Grant.*)

522. BRACHYPTERYX MINDANENSIS Mearns.

MINDANAO SHORTWING.

Brachypteryx mindanensis MEARNS, Proc. Biol. Soc. Wash. (1905), **18**, **3**; McGREGOR and WORCESTER, Hand-List (1906), 83.

Boor-roo-win'g, Bagobos of Mount Apo.
Mindanao (*Mearns, Goodfellow*).

"*Adult male.*—Similar to the male of *B. brunneiceps*, but larger and apparently less heavily washed with black on the top of the head and throat. Belly without a trace of grayish wash present in *B. poliogyna* from the Island of Luzon. Measurements of No. 192,256, U. S. National Museum, from Mount Apo at 1,920 meters, July 4, 1904. Total length, 158; alar expanse, 220; wing, 70; tail, 62; bill from base of culmen, 14; bill from nostril, 9.5; tarsus, 33; middle toe with claw, 23. Iris dark brown; bill, feet, and claws gray-black, darker than plumage.

"*Adult female.*—Similar to the female of *B. brunneiceps*, but differs in addition to its larger size and relatively longer tail, in having the abdomen washed with brownish gray. The wing-quills and spurious wing are brown. Measurements of type: Length, 158; alar expanse, 212; wing, 70; tail, 56; bill from base of culmen, 14; bill from nostril, 9; tarsus, 31; middle toe with claw, 24. Iris dark brown; bill, feet, and claws dark gray.

"*Young male in first plumage.*—Slate-colored feathers of the adult plumage are present in the greater wing-coverts and pectoral region of the specimen (No. 192,257, U. S. National Museum, from Todava, at 1,220 meters, on Mount Apo, July 11, 1904). General color clove-brown, the feathers slaty at base, all but the quills with russet shaft-spots, which are small and triangular on the back, and so extended as to give a general russet tone to the abdomen. Iris brown; bill and feet gray-black. Length, 155; alar expanse, 218; wing, 70; tail, 50; bill from base of culmen, 13; bill from nostril, 8.6; tarsus, 33; middle toe with claw, 22.

"The name 'boor-roo-wi'ng,' used by the native Bagobos, is in imitation of the lisping notes of this bird, which suggest sounds of the winds." (*Mearns.*)

523. BRACHYPTERYX MALINDANGENSIS Mearns.

MALINDANG SHORTWING.

Brachypteryx malindangensis MEARNS, Proc. U. S. Nat. Mus. (1909), 36, 441.

Mindanao (*Mearns*).

"*Characters.*—Most closely related to *Brachypteryx brunneiceps* Grant and *B. mindanensis* Mearns. Smaller than *brunneiceps*, about equaling *mindanensis;* coloration very dark; russet of front of head intensified to almost a burnt umber, and not extending backward beyond the eyes; edge and lining of wings, slate-color, instead of rusty.

"*Adult male* * * *.—Uniformly slate-black, becoming practically black on the whole head, except a minute and wholly concealed supraorbital white spot. Iris dark reddish brown; bill all jet-black; feet and claws plumbeous-black (from fresh specimen).

"*Adult female* (type).—Front of the head back to the eyes rusty burnt umber, with eye-ring of same color; hind half of head, neck all round, and all of body except abdomen, blackish slate; abdomen washed with brownish gray; wings and tail brownish black, washed with slate-color; edge and lining of wings slate-color, not russet. The colors of the iris, bill, and feet were noted as exactly like those of the male topotype.

"*Measurements.—Adult male* * * *: Total length, 160; alar expanse, 222; wing, 70; tail, 60; culmen (chord), 14.5; bill from nostril, 9; tarsus, 32; middle toe with claw, 24. *Adult female* (type): Total length, 148; alar expanse, 213; wing, 66; tail, 53; culmen (chord), 13; bill from nostril, 8.5; tarsus, 34; middle toe with claw, 24.5." (*Mearns.*)

Family **TURDIDÆ.**

Bill slender; moderate to small in size; culmen curved near the tip; a slight notch in the cutting edge of bill; bristles about the bill usually reduced; wing flat and pointed; first primary not more than one-half of second, and often much less; tarsi and feet moderate to large, the former entire in front except for the lower part; young in first plumage spotted.*

Subfamilies.

a^1. Much larger; wing, 100 mm. or more; tail square or slightly rounded. **Turdinæ** (p. 541)

a^2. Much smaller; wing, 95 mm. or less, usually much less; tail rounded, or rectrices slightly graduated.

  b^1. Upper tail-coverts black, brown, or gray.......... **Ruticillinæ** (p. 556)

  b^2. Upper tail-coverts white.......... **Saxicolinæ** (p. 564)

Subfamily TURDINÆ.

Birds of this subfamily are nearly all much larger than any of the *Ruticillinæ* or *Saxicolinæ*. The wing is long, pointed, and flat, the first primary very short; tail nearly square; plumage uniform, spotted, or bicolored; habits either arboreal or terrestrial.

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* For detailed characters of the *Turdidæ* the reader is referred to Seebohm, Cat. Birds Brit. Mus. (1881), 5, 2; and to Birds of North and Middle America, *Bull. U. S. Nat. Mus.* Washington (1907), 50, pt. 4, 1 to 4.

Genera.

- a^1. Without blue anywhere in the plumage.
  - b^1. Axillars and wing-lining uniform in color; bill more slender.
    - c^1. Plumage black and dark brown; four primaries with outer webs emarginate. **Planesticus** (p. 542)
    - c^2. Plumage of under parts white, and chestnut or gray, never black; three primaries with outer webs emarginate.............................. **Turdus** (p. 547)
  - b^2. Axillars and under wing-coverts of two colors, the arrangement of colors on one reversed on the other; bill stouter.
    - c^1. Bill moderate in length; rictal bristles not greatly developed, few and lateral.
      - d^1. Under parts marked with crescent-shaped black bands. **Oreocincla** (p. 553)
      - d^2. Under parts marked with fan-shaped spots................ **Geokichla** (p. 550)
    - c^2. Bill long and strongly curved near the tip; rictal bristles numerous and long, the anterior ones extending over the nostrils as in the flycatchers; throat, breast, and flanks with fan-shaped spots.......... **Zoothera** (p. 552)
- a^2. With more or less blue in the plumage; axillars and wing-lining nearly uniform chestnut, or else ochraceous barred with black; feathers of under parts usually fringed with gray or black............................ **Petrophila** (p. 554)

Genus PLANESTICUS Bonaparte, 1854.

Four primaries, third to sixth, with the outer webs emarginate; bill somewhat stouter than in *Turdus;* otherwise the two genera are very similar in structure. The Philippine members of *Planesticus* are resident, mountain species, and may be easily recognized by the colors, smoky brown and blackish slate, with no white on the breast and abdomen.

*Species.**

KEY BASED ON ADULT MALES.

- a^1. Wing less than 115 mm.; sides of lower breast and flanks chestnut. **mindorensis** (p. 543)
- a^2. Wing more than 115 mm.; sides of lower breast and flanks not chestnut.
  - b^1. Chest, head and neck all round nearly uniform broccoli-brown (slightly darkest on crown).
    - c^1. Wing, about 120 mm.; body uniform blackish; under tail-coverts longitudinally striped with white.
      - d^1. Larger; length, 225; wing, 121; bill from nostril, 14.7; body dark brown. **thomassoni** (p. 544)
      - d^2. Smaller; length, 215; wing, 120; bill from nostril, 13; body practically black .... **mayonensis** (p. 544)
    - c^2. Wing less than 120 mm.; body, including tail-coverts and crissum, uniform clove-brown .... **kelleri** (p. 545)
  - b^2. Chest paler, contrasting strongly with the dark color of crown.
    - c^1. Smaller; wing, 124.5 mm.; tail, 96.5; chin, throat, and chest pale sooty brown, rather lighter on breast, flanks, and belly; median area of under surface dark, except at vent; under tail-coverts dark brown with pale, whitish brown tips.. **nigrorum** (p. 545)

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* This key to the Philippine species of *Planesticus* is taken from a paper by Mearns, *Phil. Journ. Sci.* (1907), 2, sec. A, 359.

c^2. Larger; wing, 127 mm.; tail, 115; chin, throat, and chest pale drab-gray; flanks and breast similar in color to the upper surface of body; median area of under surface spotted with white anteriorly, all white posteriorly; under tail-coverts sooty-brown, with broad, longitudinal white stripes .... **malindangensis** (p. 546)

524. PLANESTICUS MINDORENSIS (Grant).

MINDORO BLACK THRUSH.*

Turdus mindorensis GRANT, Ibis (1896), 465; WHITEHEAD, Ibis (1899), 213, (habits).

Merula mindorensis SHARPE, Hand-List (1903), 4, 125; MCGREGOR and WORCESTER, Hand-List (1906), 83.

Mindoro (*Whitehead*).

"*Adult male.*—Top and sides of the head and nape grayish brown, shading into brownish black on the rest of the upper parts and tail; chin whitish; throat and upper breast brownish gray, but considerably paler than the crown; sides of the lower breast and flanks rich chestnut; middle of the breast and belly pure white; under tail-coverts dark gray, tinged with rufous and with wide white middles, widest toward the extremity. Length, 229; wing, 108; tail, 88; tarsus, 30.

"*Adult female.*—Only differs from the male in having the brownish black upper parts washed with dark olive, most conspicuous on the rump and upper tail-coverts. Length, 221; wing, 108; tail, 82.5; tarsus, 30.

"In the *immature male* the upper parts resemble those of the female, but most or many of the feathers on the top of the head are brownish black and similar in color to the back of the adult male.

"In a slightly older example the head is mixed with the brownish gray feathers of the adult plumage; in a younger bird the crown is uniform brownish black, and the feathers of the mantle have rufous shaft-stripes. Both these birds have the chest and upper breast mixed with rust-colored feathers spotted with black at the extremity, and perfectly similar to those found in the young of the common blackbird (*T. merula*).

"An *immature female* has the top of the head and nape warm dark brown, and the rest of the upper parts dark brown washed with olive, as in the adult female, but few of the feathers of the mantle and wing-coverts have narrow rufous shaft-stripes, and the throat and chest are mostly clad in the rust and black-spotted immature plumage. The nearly adult female differs only from the adult in having the crown blackish brown." (*Grant*).

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* Birds of the genus *Planesticus* are called "blackbirds" in Europe and "robins" in the United States; as both of these names are in common use for birds of entirely different genera I have employed the name "black thrush" for the Philippine species of *Planesticus*.

525. PLANESTICUS THOMASSONI (Seebohm).

LUZON BLACK THRUSH.

Merula thomassoni SEEBOHM, Bull. Brit. Orn. Club (1894), 3, 41; GRANT, Ibis (1894), 508; (1895), 445; SHARPE, Hand-List (1903), 4, 120; McGREGOR and WORCESTER, Hand-Lst (1906), 83.
Turdus thomassoni WHITEHEAD, Ibis (1899), 212.

Bul-it, Benguet.
Luzon (*Whitehead, McGregor, Mearns*).

Adult.—Entire head, neck all round, chin, throat, and chest light smoky brown, darker on forehead and crown; remainder of plumage black; some of the feathers at sides of abdomen tipped with white; under tail-coverts with white shaft-streaks and narrow rusty brown tips. Bill, legs, and nails yellow. Length of a male, plumage somewhat worn, 240; wing, 116; tail, 92; culmen from base, 22; bill from nostril, 14; tarsus, 31. A female, wing, 118; tail, 93; culmen from base, 24; bill from nostril, 15; tarsus, 33. Even in adult birds there is some variation in the amount of white on the under tail-coverts, and rusty brown fringes on the feathers of the abdomen seem to indicate immaturity. A young male has the head and neck black instead of chocolate-brown and the feathers of lower breast and abdomen are liberally marked with rusty brown, this coloring the shafts of some feathers.

526. PLANESTICUS MAYONENSIS (Mearns).

MAYON BLACK THRUSH.

Merula mayonensis MEARNS, Phil. Jour. Sci. (1907), 2, sec. A, 358.

Luzon (*Mearns*).

"*Characters.*—Pattern of coloration similar to that of *Merula thomassoni* Grant, but darker, with less contrast between the coloration of the head and that of the body. Smaller, with relatively stouter bill; preanal feathers not tipped with white.

"*Description of type* (*adult male*).—Upper surface except head and neck all black; under surface of body black perceptibly washed with brown on feather edges; head and neck very dark brown, almost black on crown; entire under surface of wings and tail dull black; under tail-coverts black with narrow median white stripes involving the shafts. Iris very dark brown; eyelids, bill, feet, and claws all yellow. Female exactly like the male. A younger male than the type differs only in having the feathers of the under side of the body edged with yellowish brown. Length, 215; wing, 120; tail, 101; culmen (chord measured from true base), 22; bill from anterior margin of nostril, 13; tarsus, 34; middle toe with claw, 32.5.

"*Female.*—Length, 210; wing, 117; tail, 99; culmen, 20.5; bill from nostril, 13; tarsus, 33; middle toe with claw, 32." (*Mearns.*)

527. PLANESTICUS KELLERI (Mearns).

KELLER'S BLACK THRUSH.

Merula kelleri MEARNS, Proc. Biol. Soc. Wash. (1905), 18, 6; McGREGOR and WORCESTER, Hand-List (1906), 83.

Pó-lo, Bagobo of Mount Apo.
Mindanao (*Mearns, Goodfellow*).

Adult.—This species is almost exactly like *P. thomassoni* in colors, but is considerably smaller in size. A male collected by Mearns measures: Length, 246; wing, 110; tail, 94; culmen from base, 21; bill from nostril, 13; tarsus, 31.

A *female,* wing, 110; tail, 89; culmen from base, 20; bill from nostril, 12; tarsus, 30.

528. PLANESTICUS NIGRORUM (Grant).

NEGROS BLACK THRUSH.

Turdus nigrorum GRANT, Ibis (1896), 544; GRANT and WHITEHEAD, Ibis (1898), 238, pl. 5, figs. 8 and 9 (eggs); WHITEHEAD, Ibis (1899), 213 (nest).

Merula nigrorum SHARPE, Hand-List (1903), 4, 119; OATES and REID, Cat. Birds' Eggs (1905), 4, pl. 5, fig. 18; McGREGOR and WORCESTER, Hand-List (1906), 83.

Negros (*Whitehead*).

"*Adult male and female.*—Above rich dark umber, darkest on the top of the head; wings and tail brownish black; chin, throat, and chest pale sooty brown, rather lighter on the breast, flanks, and belly; a band of white feathers across the vent; under tail-coverts dark brown, with pale whitish-brown tips. Bill and feet yellow. Male: Length, 241; wing, 124; tail, 96.5; tarsus, 34. Female: Length, 223.5; wing, 119; tail, 91; tarsus, 31.5.

"An *immature male* has the upper parts much like those of the adult, but the feathers of the back have indistinct margins of darker color, the chin and middle of the throat are buff, and the breast and under parts spotted with black and washed with rufous, shading into tawny buff on the middle of the belly.

"The Negros blackbird is resident on the volcano of Canloon at an altitude of from 1,600 to 2,000 meters, and both young birds and eggs were obtained." (*Grant.*)

A nest containing two "much incubated" eggs was taken by Whitehead on April 12, 1896, and another nest with two young birds was found on the 21st of the same month. The eggs are described as follows: "Shape ovate. Ground-color very pale green; one egg very thickly mottled with brick-red, almost hiding the ground-color; the second blotched toward the larger end and more thinly marked over the rest of the shell showing the very pale red-lilac clouded under-markings. As compared with eggs of the common blackbird, the above are very much redder, and closely resemble those of *Turdus simillimus*." (*Grant and Whitehead.*)

529. PLANESTICUS MALINDANGENSIS (Mearns).

MALINDANG BLACK THRUSH.

Merula malindangensis MEARNS, Phil. Jour. Sci. (1907), 2, sec. A, 357.

Mindanao (*Mearns*).

"*Characters.*—Largest of the Philippine species of *Merula*. Breast and under side of neck light drab-gray, a darker shade of this color extending to the throat and chin and forming an indistinct collar around the hind neck; middle of abdomen and crissum nearly white; mantle, back, rump, and upper tail-coverts light sooty-brown: wings and tail dark sooty-brown.

"*Adult male.*—Upper side of head, mantle, back, rump, and upper tail-coverts light sooty-brown; flanks slightly paler and browner; wings and tail dark sooty-brown, more fuliginous on under surface; chest and under side of neck light drab-gray, a darker shade of this color encircling the neck and extending to the chin and throat, where the feathers have dark shaft-streaks; sides of head pale sooty-brown; feathers of the median area from chest to crissum, with broad, white edges and a dark central area inclosing a sagittate white spot, giving a spotted appearance to the middle of the under surface of the body; crissum with this light area expanded and practically all white; under tail-coverts sooty-brown, longitudinally striped with white or pale buff.

"*Adult female.*—Similar to the male but slightly smaller and dingier in color with a slight rufescence on sides of lower breast and flanks.

"*Immature male.*—Sides of lower chest and flanks more strongly washed with raw-umber than in adult females: chest and throat darker.

"*First plumage (male).*—Upper surface dusky, washed with raw-umber, especially on the head, neck, upper back, and wing-coverts; scapulars with pale rusty shaft-streaks, and some of the lesser wing-coverts edged with the same; under surface sepia-brown strongly mixed with reddish brown and spotted with brownish black, the rufescence covering the middle of the throat and much of the chest, the blackish cordate spots being confined to the tips and the rusty bands crossing the middle of the feathers; whitish median stripe distinct but with pale rufescent edging to the feathers except on lower abdomen; under tail-coverts sepia-brown with rusty edging and broad, white, median stripes.

"In other specimens taken at the same season, the molt was nearly finished, leaving a few feathers with rusty bands and black spots and with a stronger rusty washing to the flanks than in adults." (*Mearns.*)

Genus TURDUS Linnæus, 1758.

Rictal bristles weak, less than bill from nostril; wing strong, flat, and pointed; third, fourth, and fifth primaries emarginate on outer webs; first primary very short, less than primary-coverts; tail nearly square; tarsus slightly less than one-third of tail and about equal to middle toe with claw. Upper parts olive-brown, russet-brown, or gray; chin and throat light with dusky streaks; chest, sides, and flanks dull chestnut or gray; crissum and middle of breast and abdomen white. This color pattern is characteristic of the three migratory species which have been found in the Philippine Islands.

Species.

a^1. Without a white superciliary stripe.
  b^1. Chest, sides, and flanks gray or drab-gray .... **pallidus** (p. 547)
  b^2. Chest, sides, and flanks chestnut .... **chrysolaus** (p. 548)
a^2. With a well-marked, white, superciliary stripe extending from above lores to above ear-coverts .... **obscurus** (p. 549)

530. TURDUS PALLIDUS Gmelin.

PALE THRUSH.

Turdus pallidus GMELIN, Syst. Nat. (1788), 1, 815; SHARPE, Hand-List (1903), 4, 128; OATES and REID, Cat. Birds' Eggs (1905), 4, 118, pl. 6, fig. 11; MCGREGOR and WORCESTER, Hand-List (1906), 84.
Merula pallida SEEBOHM, Cat. Birds Brit. Mus. (1881), 5, 273.

Calayan (*McGregor*). Japan and eastern Siberia; Formosa and Southern China in winter.

"In the *adult male* the general color of the upper parts is rich russet-brown, tinged with gray on the head; lores very dark brown; ear-coverts brown; no trace of eye-stripe; wings brown, the primaries, primary-coverts, and alula wing-feathers with the outer webs slate-gray, the secondaries, greater, median, and lesser wing-coverts with the outer webs russet-brown; tail dark brown, the outer webs of each feather margined with olive-brown; inner web of outside tail-feathers white for half an inch [13 mm.] at the tip; inner web of second outside tail-feather on each side with rather less white at the tip; more or less white at the tip of the third outside tail-feather on each side; throat and cheeks, breast and flanks slate-gray, shading into white on the belly and the center of the breast, and more or less irregularly shaded with brown on the lower throat, sides of breast, and flanks; under tail-coverts white, with the basal half edged with brown; axillars and under wing-coverts pale slate-gray obscurely tipped with white; inner margin of quills pale slaty brown. Bill dark brown, yellow at the base of the under mandible. Wings with the third, fourth, and fifth primaries nearly equal and longest, second primary intermediate in length between the fifth and sixth, bastard primary 19 to 12.7 mm. Legs, feet, and claws pale brown. Wing, 129.5 to 119; tail. 99 to 84; culmen, 29 to 23; tarsus, 30 to 29.

"The *female* differs from the male in having the parts which are slate-gray, replaced by russet-brown, and in having the center of the throat grayish white, and the cheeks and sides of the throat with brown fan-shaped terminal spots. *Males of the year* have the plumage of the female, and the greater wing-coverts with more or less conspicuous pale tips. *Young in first plumage* are unknown." (*Seebohm.*)

A female from Calayan measures: Wing, 122; tail, 87; culmen from base, 23; bill from nostril, 14; tarsus, 30.

531. **TURDUS CHRYSOLAUS** Temminck.

JAPANESE BROWN THRUSH.

Turdus chrysolaus TEMMINCK, Pl. Col. (1831), 2, 537; WHITEHEAD, Ibis (1899), 213; SHARPE, Hand-List (1903), 4, 139; OATES and REID, Cat. Birds' Eggs (1905), 4, 119, pl. 6, figs. 15 and 18; MCGREGOR and WORCESTER, Hand-List (1906), 84.

Merula chrysolaus SEEBOHM, Cat. Birds Brit. Mus. (1891), 5, 275.

Pir-pi-rú-ca, Calayan.

Calayan (*McGregor*); Luzon (*Whitehead*). Japan, Hainan, and Eastern Siberia; in winter to Formosa and China.

"In the *adult male* the general color of the upper parts is russet-brown, tinged with gray on the head; lores very dark brown; ear-coverts brown; scarcely a trace of eye-stripe; wings brown, the primaries, primary-coverts, and alula feathers with the outer webs slaty brown; the secondaries, greater, median, and lesser wing-coverts with outer webs russet-brown; tail brown, the outer web of each feather margined with olive-brown; inner web of the outside tail-feathers narrowly margined with white; throat and cheeks sooty brown, shading into chestnut-brown on the breast, and into deep rich chestnut on the flanks, leaving the belly white; under tail-coverts white, with the basal half edged with brown; axillars and under wing-coverts edged with pale slate-gray, obscurely tipped with white; inner margin of quills pale slaty brown. Bill dark brown, yellow at the base of the under mandible. Wings with the third and fourth primaries nearly equal and longest, second primary between the fourth and fifth, or fifth and sixth, bastard primary 18 to 16.5 mm. Legs, feet, and claws pale brown. Wing, 127 to 117; tail, 91 to 79; culmen, 22.6 to 19; tarsus, 33 to 29.

"The *female* has no gray on the head or wings, the upper throat is nearly white, and the feathers of the cheeks and the center of the throat are white, with dark brown, fan-shaped terminal spots. *Males of the year* resemble females. *Young in first plumage* are unknown." (*Seebohm.*)

532. TURDUS OBSCURUS Gmelin.

DARK THRUSH.

Turdus obscurus GMELIN, Syst. Nat. (1788), 1, pt. 2, 816; WHITEHEAD, Ibis (1899), 212 (migration); OATES and REID, Cat. Birds' Eggs (1905), 4, 119; MCGREGOR and WORCESTER, Hand-List (1906), 84.
Merula obscura SEEBOHM, Cat. Birds Brit. Mus. (1891), 5, 273.

Apo (*Celestino*); Calayan (*McGregor*); Guimaras (*Steere Exp.*); Luzon (*Cuming, Othberg, Whitehead*); Mindanao (*Goodfellow*); Negros (*Whitehead*). Eastern Siberia, Japan, Eastern Himalayas and Malay Peninsula; in winter to China, Borneo, and Burma.

"In the *adult male* the general color of the upper parts is olive-brown, tinged with gray on the crown and nape; lores very dark brown; ear-coverts slaty brown; eye-stripe white, extending nearly to the nape; wings, wing-coverts, and tail brown, the outer web of each feather olive-brown, grayer on the margins of the primaries and primary-coverts; outside tail-feathers obscurely tipped with white on the inner web; throat and cheeks slaty brown, shading into olive-brown on the breast and into pale chestnut-brown on the flanks, leaving the belly white; under tail-coverts white, with basal half edged with brown; axillars and under wing-coverts pale slate-gray, obscurely tipped with white; inner margin of quills pale brown. Bill with upper mandible dark brown; under mandible pale yellow, darker toward the tip. Wing with the third primary longest, second primary between the fourth and fifth, bastard primary, 15 to 13 mm. Legs, feet, and claws pale brown. Wing, 127 to 112; tail, 91 to 76; culmen, 22 to 20; tarsus, 32 to 28.

"The *female* differs from the male in not having the slaty tint on the crown, nape, and sides of the head; the throat is white, obscurely streaked with brown, and the flanks are very slightly suffused with pale chestnut-brown. In spring the general color of the upper parts has faded from russet-brown into a grayer brown, which becomes still more gray during summer.

"*Birds of the year* do not entirely lose the marks of immaturity until their second autumn molt; the wing-coverts and innermost secondaries frequently retain the pale tips, though these are white rather than ochraceous; the throat and eye-stripe of the female are much suffused with ochraceous, and the throat of the male resembles that of the adult female.

"*Young in first plumage* have most of the feathers of the upper parts with pale ochraceous shafts, the feathers of the back have traces of dark-brown terminal bars, and the wing-coverts and innermost secondaries have pale ochraceous tips to the outside webs; on the under parts the feathers of the cheeks and breast have dark-brown tips, which become less conspicuous on the flanks; the throat and eye-stripe are suffused with ochraceous." (*Seebohm.*)

A male from Apo Island, near Mindoro, measures: Wing, 126; tail, 97; culmen from base, 22; bill from nostril, 13; tarsus, 30.

Genus GEOKICHLA "Boie" S. Müller, 1835.

Bill short and stout; bristles about bill short and weak; first primary a little shorter than primary-coverts; third to sixth primaries with outer webs emarginate; inner webs of quills light colored at base; axillars bicolored, the colors reversed on the under wing-coverts; tail short, about twice the tarsus. Under parts white, spotted with black.

Species.

a^1. Head brownish chestnut; chin, throat, and chest black........ **interpres** (p. 550)
a^2. Head ashy gray; chin and throat white, spotted or barred with black.
  b^1. Median and greater wing-coverts with white tips forming two bars. **cinerea** (p. 551)
  b^2. No white spots on any of the upper wing-coverts.......... **mindanensis** (p. 552)

533. GEOKICHLA INTERPRES (Temminck).

KUHL'S GROUND THRUSH.

Turdus interpres "Kuhl MS," TEMMINCK, Pl. Col. (1828), 2, no. 458.
Geocichla interpres SEEBOHM, Cat. Birds Brit. Mus. (1881), 5, 166; SHARPE, Hand-List (1903), 4, 132; MCGREGOR and WORCESTER, Hand-List (1906), 84.

Basilan (*Steere Exp.*); Sulu (*Platen*); Tawi Tawi (*Bourns & Worcester*). Malay Peninsula, northwestern Borneo, Java, Sumatra, Lombok, Sumbawa.

"In the *adult male* in spring plumage the head is brownish chestnut, shading into orange-chestnut on the nape; the rest of the upper parts slate-gray; lores grayish white; no trace of eye-stripe; ear-coverts and cheeks black, the feathers of the former with white bases; innermost secondaries and quills dark brown; wing-coverts nearly black; median wing-coverts white; greater wing-coverts tipped with white; unemarginated portion of outside web of primaries pale slate-gray; tail brown, the outside feather on each side broadly tipped with white, and the next narrowly so; chin, throat, and upper breast black; rest of the under parts white, suffused with ochraceous on the flanks; the feathers of the lower breast with conspicuous fan-shaped black terminal spots, which become obscure on the flanks; axillars, basal portion white, terminal portion dark slate-gray; lower under wing-coverts, basal portion black, terminal portion white; basal portion of inner web of the secondaries and many of the primaries white. Bill dark brown above and below. Wing with the fourth and fifth primaries nearly equal and longest, second primary between the seventh and eighth, bastard primary, 24 to 21.5

mm. Legs, feet, and claws flesh-color. Wing, 108 to 102; tail, 61 to 53; culmen, 19.5 to 18; tarsus, 29 to 28. The adult plumage of the sexes appears to be alike, nor is it known that any important change takes place by abrasion.

Young in first plumage appear to have the whole of the upper parts dull chestnut, each feather having a pale shaft and obscure pale center; the white bars on the wings are suffused with chestnut, and the black on the under parts is confined to two moustachial lines on the cheeks, the rest being dull chestnut. This plumage is immediately molted to the adult plumage in the first autumn, except that certain birds, which I take to be *females,* have the slate-gray of the upper parts replaced by dark olive-brown." (*Seebohm.*)

534. **GEOKICHLA CINEREA** Bourns and Worcester.

MINDORO GROUND THRUSH.

Geocichla cinerea BOURNS and WORCESTER, Minnesota Acad. Nat. Sci. Occ. Papers (1894), 1, 23; SHARPE, Hand-List (1903), 4, 133; McGREGOR and WORCESTER, Hand-List (1906), 84.

Mindoro (*Bourns & Worcester, McGregor*).

Male.—Above black; feathers of head, neck, back, rump, and scapulars edged with ashy gray; lores white, the hair-like tips of the shafts black; eye-circle white, broken above and below center of eye by a black spot; feathers of jaw and ear-coverts white with black tips, between these areas the cheeks are black; chin feathers white, their shafts with black hair-like tips; remainder of under parts white, the feathers of throat, chest, and sides of body and abdomen with large fan-shaped black tips, forming an almost solid black pectoral patch, but posteriorly becoming gradually smaller; crissum and middle of abdomen without spots and washed with ocherous buff, most heavily on the longer tail-coverts; a dusky wash on flanks; wing-feathers blackish; outer webs of primaries edged with gray; inner webs of quills, except first two, with a diagonal band of light buff or white; alula and primary- and secondary-coverts black; greater and median coverts tipped with white forming two bars; edge of wing white; axillars white, tipped with blackish, these colors reversed on under wing-coverts; tail blackish, outermost rectrices each with a terminal white spot on inner web. Length, about 200 mm. A male measures: Wing, 115; tail, 70; culmen from base, 22; bill from nostril, 13; tarsus, 32; middle toe with claw, 29.

Female.—The only female examined is very similar to the male, but the ocherous wash of the under parts is lighter and the outer webs of the primary-coverts are marked with white forming a short band. Bill black, base of lower mandible whitish; iris very dark brown; legs and nails white. Wing, 112; tail, 63; culmen from base, 22; bill from nostril, 13; tarsus, 30.

535. GEOKICHLA MINDANENSIS Mearns.

MINDANAO GROUND THRUSH.

Geocichla mindanensis MEARNS, Phil. Jour. Sci. (1907), 2, sec. A, 359.

Mindanao (*Mearns*).

"*Description of type* (*and only specimen*).—Upper surface, including head, dark ashen gray closely resembling the shade of the same parts in *Geocichla cinerea* Bourns and Worcester; feathers of the back edged with black; scapulars with black spots occupying the tip of the web on the upper side; wing and tail-feathers shaded with brown and crossed by obsolete, wavy bars of darker; lores, eyelids, ear-coverts, and cheeks cinereous finely mixed with pale fawn-color, the malar region being cross-banded with black and fawn and the ear-coverts longitudinally striped with white; chin and throat white, narrowly cross-banded with black and bordered by black stripes; pectoral region plain cinereous-ash with pale shafts to the feathers; lower chest and flanks black and white, each feather heavily margined with jet-black inclosing a sharply pointed white spot; middle of abdomen white; crissum white, faintly washed with buff which is strongest on the lower tail-coverts; under side of wing-quills broadly white on inner border at base; edge of wing white; axillars white at base, broadly black at tip; under wing-coverts black, tipped with white and pale cream-color; upper wing-coverts without white spots. Length, 230; wing, 125; tail, 78; culmen (chord), 35; bill from nostril, 19; tarsus, 32; middle toe with claw, 30.

"This species was occasionally seen as it darted through the mossy forest or alighted upon the ground; but it was so shy that only a single specimen was shot, although its loud, sweet song was frequently heard at morning and evening." (*Mearns.*)

Genus ZOOTHERA Vigors, 1831.

"In the genus *Zoothera* the sexes are alike, the under wing-coverts and axillars of two colors, the colors in the one part transposed or reversed in the other, the lower plumage squamated, not distinctly barred nor spotted, and the rictal bristles very long and numerous. The anterior or supplementary bristles extend over the nostrils as in the flycatchers, and *Zoothera* is the only genus of thrushes in which this feature is present. The bill is very long and strongly curved near the tip, and the edges of the mandible are frequently serrated by wear and tear, but never originally so." (*Oates.*)

536. ZOOTHERA ANDROMEDÆ (Temminck).

JAVAN GROUND THRUSH.

Myiothera andromedæ "Kulh MS," Temminck, Pl. Col. (1826), 2, no. 392.
Geocichla andromedæ Seebohm, Cat. Birds, Brit. Mus. (1881), 5, 163.
Zoothera andromeda Sharpe, Hand-List (1903), 4, 138.
Geocichla andromeda Grant, Ibis (1906), 477.

Mindanao (*Goodfellow*). Java, Sumatra, Lombok.

"In the *adult male in spring plumage* the general color of the upper parts is dark brown, approaching black on the head and on the margins of the feathers of the back; feathers of lores and ear-coverts with pale centers; no trace of eye-stripe; wings and tail not quite so black as the back; chin and upper throat white, with narrow transverse terminal black bands; cheeks pale slate-gray with broad terminal black bands; lower throat and breast pale slate-gray; center of belly and under tail-coverts buffish white; flanks black with large diamond-shaped white centers; axillars, basal half white, terminal half black; lower under wing-coverts, basal half black, terminal half white; basal portions of the inner webs of the secondaries and many of the primaries white. Bill abnormally long, dark brown above and below; wing with the fourth primary slightly the longest, second primary about equal to the sixth; bastard primary, 32 to 28 mm. Legs, feet, and claws dark brown. Wing, 124 to 122; tail, 77 to 71; culmen, 29 to 28; tarsus, 34 to 33.

"It is not known that there is any difference of plumage attributable to either sex or season. *Young in first plumage* have pale ochraceous shafts to most of the feathers of the upper parts and fan-shaped, ochraceous terminal spots to the wing-coverts. The under parts are also much suffused with ochraceous and the breast and flanks barred with black, the diamond-shaped pale centers being irregular in shape." (*Seebohm.*)

Genus OREOCINCLA Gould, 1838.

"In the genus *Oreocincla* the sexes are alike, the under wing-coverts and axillars are each of two colors, those on the axillars being transposed or reversed in order on the under wing-coverts, the lower plumage is distinctly barred or spotted, never squamated, and the rictal bristles are few and confined to the gape. The tail is typically short and the upper tail-coverts very ample. There is a distinct pattern on the under side of the wing." (*Oates.*)

537. OREOCINCLA VARIA (Pallas).

VARIED THRUSH.

Turdus varius PALLAS, Zoogr. Rosso-As. (1811), **1**, 449.

Geocichla varia SEEBOHM, Cat. Birds Brit. Mus. (1881), **5**, 151; WHITEHEAD, Ibis (1899), 212.

Oreocichla varia SHARPE, Hand-List (1903), **4**, 136; McGREGOR and WORCESTER, Hand-List (1906), 84.

Luzon (*Whitehead*); Mindoro (*Porter*). Japan and Siberia, accidental in Europe; China and Burma in winter.

"In the *adult male in spring plumage* the general color of the upper parts is ochraceous brown, each feather having a transverse terminal crescent-shaped black band; most of the feathers have pale shafts and a more or less distinct ochraceous transverse subterminal band, very conspicuous on the head and neck; lores grayish white; no trace of eye-stripe; wing-coverts and innermost secondaries shading from dark olive-brown on the inside webs to ochraceous brown on the outside webs, but, with the exception of the primary-coverts, wanting the black terminal bands; quills brown, the outside webs ochraceous brown; four central and terminal portion on two outside tail-feathers on each side ochraceous brown, the remaining three on each side very dark olive-brown; five outside tail-feathers on each side more or less distinctly tipped with white, and all more or less obscurely barred; under parts white, with a more or less distinct tinge of ochraceous on the breast, each feather with a transverse terminal crescent-shaped black band, nearly obsolete on the chin, center of belly, and under tail-coverts; axillars, basal half white, terminal half black; under wing-coverts, basal portion black, terminal portion white; basal half of inner web of secondaries and basal portion of many of the primaries pale buff. Bill dark brown above, basal half of under mandible pale yellowish brown. Wing with the third and fourth primaries nearly equal and longest, second primary between the fourth and fifth; bastard primary, 26.6 to 23 mm. Legs, feet, and claws pale yellowish brown. Length of wing, 162.5 to 150; tail, 114 to 105; culmen, 33 to 28; tarsus, 35.5 to 33.

"It is not known that there is any difference in the color of the plumage of the sexes, or in consequence of the *autumn molt. Birds of the year and young in first plumage* are unknown." (*Seebohm.*)

Genus PETROPHILA Swainson, 1837.

Rictal bristles weak, less than bill from nostril; first primary slender, equal to primary-coverts; outer webs of third, fourth, and fifth primaries sinuate; tarsus little longer than middle toe with claw; tail three times the tarsus. Males largely blue and chestnut; females dull gray or brown, barred with blackish brown; under parts washed with ocherous buff.

538. PETROPHILA MANILLENSIS (J. R. Forster).

EASTERN ROCK THRUSH.

Turdus manillensis J. R. FORSTER, Ind. Zool. (1781), 41.*
Turdus manilla BODDAERT, Tabl. Pl. Enl. (1783), 39.
Monticola cyanus solitaria SEEBOHM, Cat. Birds Brit. Mus. (1881), 5, 318.
Petrophila solitaria OATES, Fauna Brit. India (1890), 2, 145.
Monticola solitarius WHITEHEAD, Ibis (1899), 214 (winter migration).
Petrophila manilla SHARPE, Hand-List (1903), 4, 144; OATES and REID, Cat. Birds' Eggs (1905), 4, 130; MCGREGOR and WORCESTER, Hand-List (1906), 85.

Sol-i-tá-ri-o, in general use; *yu-ta-yú-ta*, Siquijor.

Agutaya (*McGregor*); Balabac (*Steere Exp., Everett*); Basilan (*Steere Exp.*); Batan (*McGregor*); Cagayancillo (*McGregor*); Calamianes (*Bourns & Worcester, McGregor*); Calayan (*McGregor*); Cuyo (*McGregor*); Guimaras (*Meyer, Steere Exp.*); Leyte (*Everett, Steere Exp.*); Lubang (*McGregor*); Luzon (*Meyer, Everett, Schmacker, Steere Exp., Bourns & Worcester, Whitehead, McGregor, Bartsch*); Masbate (*Bourns & Worcester*); Mindanao (*Everett, Steere Exp., Goodfellow*); Mindoro (*Schmacker, Bourns & Worcester, McGregor*); Negros (*Layard, Bourns & Worcester, Whitehead, Keay*); Palawan (*Everett, Whitehead, Platen, Bourns & Worcester, White*); Panaon (*Everett*); Panay (*Steere, Steere Exp.*); Polillo (*McGregor*); Romblon (*Bourns & Worcester*); Sibay (*McGregor & Worcester*); Sibuyan (*Bourns & Worcester*); Siquijor (*Bourns & Worcester, Celestino*); Sulu (*Bourns & Worcester*); Tablas (*Bourns & Worcester*); Tawi Tawi (*Bourns & Worcester*); Ticao (*McGregor*); Verde (*McGregor*); Y'Ami (*McGregor*). Japan and eastern Siberia; in winter to southern China, Burmese Provinces, and Malay Archipelago.

Male.—Upper parts, sides of head and neck, chin, throat, and chest blue, this color much obscured by gray, brown, and blackish tips to the feathers; lower breast, abdomen, crissum, and thighs deep chestnut, obscured by whitish tips and blackish subterminal bars; axillars and wing-lining chestnut; wings and tail black, the feathers edged with blue and tipped with white. Length, about 215; wing, 125; tail, 81; culmen from base, 21; bill from nostril, 14; tarsus, 27.5. This plumage is the one usually found in winter birds in the Philippines. "At the end of winter the white fringes and subterminal black bars on the blue parts of the plumage are entirely lost, and the marks on the chestnut parts are also removed by abrasion in great measure, but never entirely." (*Oates.*)

"The *female* much resembles the autumn plumage of the male, except that the blue of the upper parts is much duller and the whole of the under parts are pale whitish brown, suffused with pale buffish brown on the axillaries and under wing- and tail-coverts; each feather on the under parts has a dark brown subterminal transverse band, which on the throat is continued on the margins of the feathers; the axillars and the under tail-coverts have several transverse dark bars. After the autumn molt the only perceptible difference in the female is that the pale brown margins of the feathers are somewhat longer. *Males of the year* scarcely differ from adult females, excepting in having the ground-color of the under parts, especially on the breast and belly, tinged with blue. *Females of the year* have the ground-color of the upper parts brown, only slightly tinged with blue on the wing-coverts, rump, and upper tail-coverts. *Young in first plumage* differ very slightly from the females of the year, but have scarcely a trace of blue." (*Seebohm.*)

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* I use Forster's name for this rock thrush on the recommendation of Dr. C. W. Richmond.

A *young female* from Calayan is brown, slightly washed with dull blue on mantle and back; feathers of mantle, back, and tail-coverts with subterminal blackish bars and gray tips; under parts ocherous buff the feathers with subterminal blackish bars; wings black, the feathers tipped with white and edged with gray, tail similar; wing-lining, axillars, and crissum richer ocherous barred with black.

"Curiously enough this bird is called 'solitaria' by the natives of Negros on account of its habits. Always seen singly or in pairs. Common in the villages, especially about old churches. Also abundant on the rocks along the seashore and in open country in general; never found in the forest. Iris dark brown; bill, legs, feet, and nails black; food, insects.

"Six males average, 210 in length; wing, 111; tail, 85; culmen, 23; tarsus, 27; middle toe with claw, 26. Four females, length, 210; wing, 111; tail, 84; culmen, 23; tarsus, 27; middle toe with claw, 27." (*Bourns and Worcester MS.*)

A specimen from Bataan Province, Luzon, appears to be much nearer *Petrophila cyanus* (Linnæus) than *P. manillensis;* the under parts are blue with the chestnut restricted to the axillars, wing-lining, crissum, and a few feathers in the middle of abdomen.

Subfamily RUTICILLINÆ.

Nearly all the members of this subfamily are considerably smaller than any of the *Turdinæ.* There is much diversity in the color pattern as well as in the length and shape of the tail. The species are mostly terrestrial.

Genera.

*a*¹. Tail rounded and decidedly shorter than wing.
  *b*¹. Without a white eyebrow; plumage dark blue and chestnut. **Chaimarrornis** (p. 557)
  *b*². With a distinct white eyebrow; chin and throat bright red in the male, white in the female, forming a conspicuous patch............ **Calliope** (p. 558)
*a*². Tail-feathers strongly graduated, the longest equal to or longer than the wing; plumage mostly black, or black and white.
  *b*¹. Lesser and median wing-coverts mostly white, forming a large patch; abdomen and crissum white .... **Copsychus** (p. 558)
  *b*². Lesser and median wing-coverts black; outer tail-feathers tipped with white, or else entire plumage black .... **Kittacincla** (p. 560)

Genus CHAIMARRORNIS Hodgson, 1844.

Bill small and slender; culmen from base about equal to hind toe with claw; first primary about one-half of second and a little shorter than tarsus; tail rounded, about two-thirds as long as wing, and scarcely exceeding the outstretched legs and feet. Colors dark blue and chestnut.

539. CHAIMARRORNIS BICOLOR Grant.

BICOLORED REDSTART.

Chimarrhornis bicolor Grant, Bull. Brit. Orn. Club (1894), **3**, 44; Ibis (1894), 509, pl. 15, fig. 2; (1895), 446; Whitehead, Ibis (1899), 217 (habits); Sharpe, Hand-List (1903), **4**, 150; McGregor and Worcester, Hand-List (1906), 85.

U-li-si-u, Irisan, Benguet Province.
Luzon (*Whitehead, McGregor*).

Male.—General color slate-blue, throat darker; chin, jaw, and lores black; abdomen, crissum, flanks, rump, and upper tail-coverts rich chestnut; thighs slate-gray, tail chestnut; wing-feathers dark brown, their edges slate-blue. Bill and nails black; legs and feet very dark brown. Length, 152; wing, 77; tail, 58; culmen from base, 14; bill from nostril, 8.5; tarsus, 25; middle toe with claw, 21.

Female.—Similar to the male but duller in color; rump, tail-coverts, and tail brown, very slightly chestnut. Length, 152; wing, 75; tail, 55; culmen from base, 15; bill from nostril, 8.5; tarsus, 25; middle toe with claw, 21.

Young.—A young male taken in June, 1903, has the plumage dark smoke-gray, almost black, the feathers of throat, breast, and wing-coverts faintly tipped with gray; wings and tail as in the adult and a few new feathers of head, neck, breast, and abdomen indicating the adult colors.

Genus CALLIOPE Gould, 1837.

Bill slender; culmen from base nearly equal to hind toe with claw; wing long and pointed; first primary more than one-half second and longer than tarsus; tail rounded, about three-fourths as long as wing. Throat white or bright red.

540. CALLIOPE CALLIOPE (Pallas).

SIBERIAN RUBYTHROAT.

Motacilla calliope PALLAS, Reise Russ. Reichs (1776), 3, 697.
Erithacus calliope SEEBOHM, Cat. Birds Brit. Mus. (1881), 5, 305.
Calliope camtschatkensis OATES, Fauna Brit. Ind. Bds. (1890), 2, 102, fig. 29 (head); WHITEHEAD, Ibis (1899), 214 (habits).
Calliope calliope SHARPE, Hand-List (1903), 4, 155; OATES and REID, Cat. Birds' Eggs (1905), 4, 149; McGREGOR and WORCESTER, Hand-List (1906), 85.

Pi-lóy, Manila.

Calayan (*McGregor*); Luzon (*Everett, Whitehead, McGregor*); Masbate (*Bourns & Worcester*); Mindoro (*Whitehead*); Negros (*Whitehead*). Siberia and northern China; in winter to southern China, Burmese Provinces, northern and central India; accidental in Europe.

Male.—Above olive-brown, at times more or less ashy; line over lores and over eye white; lores and line under eye black, below this a broader white line; base of jaw black; chin and throat-patch bright strawberry-red surrounded by a narrow line of black; chest ashy gray; middle of breast and abdomen white; sides of abdomen and flanks light buff-brown; tail-coverts white, washed with buff. Iris brown; bill dusky brown, nearly black with its base whitish; legs and nails dark flesh-color. Length, about 160 mm. A male from Calayan measures: Wing, 80; tail, 64; culmen from base, 15; bill from nostril, 9; tarsus, 30; middle toe with claw, 24.

Female.—Differs from the male in having black lines on sides of head and throat replaced by brown; loral feathers with brown tips; throat-patch white; no ashy gray on breast. A female from Calayan measures: Wing, 78; tail, 63; culmen from base, 15; bill from nostril, 10; tarsus, 29.

"*Birds of the year* have the brown of both the upper and under parts more ochraceous, and the male resembles the female, except in having traces of red on the throat. *Young in first plumage* appear to be unknown." (*Seebohm.*)

Genus COPSYCHUS Wagler, 1827.

Bill moderately stout, when measured from nostril less than hind toe with claw; rictal bristles small; wing pointed, slightly concave, and less than tail in length; first primary more than one-half the second, and much longer than tarsus; rectrices long, narrow, and strongly graduated; outstretched feet not reaching tips of shortest pair of rectrices. Colors black and white, the tail entirely black in the only Philippine species. Sexes somewhat unlike in colors.

541. COPSYCHUS MINDANENSIS (Boddaert).

DOMINICO.

Turdus mindanensis BODDAERT, Tabl. Pl. Enl. (1783), 38.
Turdus mindanœnsis GMELIN, Syst. Nat. (1788), **1**, pt. 1, 823.
Copsychus mindanensis WALDEN, Trans. Zool. Soc. (1875), **9**, 194, pl. 33, fig. 1; SHARPE, Cat. Birds Brit. Mus. (1883), **7**, 60; Hand-List (1903), **4**, 159; WHITEHEAD, Ibis (1899), 218 (habits); MCGREGOR and WORCESTER, Hand-List (1906), 86.

A-ni-ní-hol, Siquijor; *do-mi-ní-co*, Manila.

Bantayan (*McGregor*); Basilan (*Everett, Steere Exp., Bourns & Worcester, McGregor*); Bohol (*McGregor*); Bongao (*Everett*); Cebu (*Meyer, Everett, Bourns & Worcester, McGregor*); Guimaras (*Meyer, Steere Exp.*); Lapac (*Bartsch*); Leyte (*Everett*); Lubang (*McGregor*); Luzon (*Everett, Möllendorff, Steere Exp., Whitehead, McGregor, Bartsch*); Masbate (*Bourns & Worcester, McGregor*); Mindanao (*Everett, Steere Exp., Bourns & Worcester, Goodfellow*); Mindoro (*Bourns & Worcester, Everett, McGregor*); Negros (*Layard, Everett, Steere Exp., Bourns & Worcester, Keay*); Romblon (*Bourns & Worcester, McGregor, Bartsch*); Samar (*Steere Exp.*); Semirara? (*Worcester*); Sibuyan (*Bourns & Worcester, McGregor*); Siquijor (*Bourns & Worcester, Celestino*); Sulu (*Guillemard, Bourns & Worcester*); Tablas (*Bourns & Worcester, Celestino*); Tawi Tawi (*Bourns & Worcester*); Ticao (*McGregor*); Verde (*McGregor*).

Male.—Upper parts and entire head, throat, and breast glossy blue-black; axillars, under wing-coverts, and feathers of thighs black, tipped with white; remainder of under parts white; wings and tail black, outer webs of the feathers glossy; inner wing-coverts entirely white (but one of the greater coverts occasionally half black); two secondaries with outer webs white. Length, about 185 mm. A specimen from Siquijor measures: Wing, 92; tail, 90; culmen from base, 20; bill from nostril, 14; tarsus, 25.

Female.—Similar to the male, but upper parts duller; forehead, lores, chin, throat, and breast ash-gray; flanks and crissum washed with pale fulvous. A female measures: Wing, 83; tail, 83; culmen from base, 18; bill from nostril, 12.

Young.—Colors similar to adult in pattern, but upper parts dull black; chin, throat, and breast dark smoke-gray, spotted with white and pale buff.

"A showy bird, commonly seen in low bushes and about clumps of bamboo, close to the ground, or on it. The male is constantly opening and closing his tail, and seems to be a vain fellow, well aware of his good looks, and disposed to make the most of them. He is a fine singer as well. Seven males average 203 in length; wing, 107; tail, 105; culmen, 20; tarsus, 26; middle toe with claw, 24. Four females, length, 199; wing, 84; tail, 83; culmen, 18.5; tarsus, 23; middle toe with claw, 23. Iris and bill black; legs and feet nearly black. Breeding in Mindanao in the month of May." (*Bourns and Worcester MS.*)

Genus KITTACINCLA Gould, 1836.

Bill slender, hind toe with claw longer than bill from nostril; rictal bristles small; feathers about bill and chin with the shafts stiff, produced, and slightly recurved; wing pointed; first primary more than one-half the second; rectrices wide and strongly graduated. Colors largely black and white. In the type of the genus (*Kittacincla tricolor*) the tail is nearly twice as long as the wing, but in none of the Philippine species is the tail so greatly developed. *Kittacincla* may be distinguished from *Copsychus* by its more slender bill and wider rectrices.

Species.

a^1. Wing slightly longer than tail; superciliary stripe white; breast and abdomen white.
  b^1. Rump and tail-coverts orange-chestnut........................ **luzoniensis** (p. 560)
  b^2. Rump and tail-coverts black........................ **superciliaris** (p. 561)
a^2. Wing decidedly shorter than tail; superciliary stripe wanting; throat, breast, and abdomen nearly all, or entirely, black.
  b^1. Tail partly white........................ **nigra** (p. 562)
  b^2. Tail all black........................ **cebuensis** (p. 563)

542. KITTACINCLA LUZONIENSIS (Kittlitz).

LUZON SHAMA.

Turdus luzoniensis Kittlitz, Kupf. der Vögel (1832), 7, pl. 11, fig. 2.
Cittocincla luzoniensis Sharpe, Cat. Birds Brit. Mus. (1883), 7, 91; Hand-List (1903), 4, 162; Grant, Ibis (1895), 447; (1896), 116; Grant and Whitehead, Ibis (1898), 239, pl. 6, fig. 4 (egg); Whitehead, Ibis (1899), 218 (habits, eggs); Oates and Reid, Cat. Birds' Eggs (1905), 4, 156, pl. 7, fig. 15; McGregor and Worcester, Hand-List (1906), 86.

Catanduanes (*Whitehead*); Luzon (*Kittlitz, Möllendorff, Steere Exp., Bourns & Worcester, Whitehead, McGregor*); Marinduque (*Steere Exp.*); Polillo (*McGregor*).

Male.—Head, neck, back, chin, and throat black, the upper parts with a slight blue gloss; on each side of head from above lores to nape a broad superciliary band of white, connected across forehead by a narrow white band; rump and tail-coverts orange-chestnut; breast, abdomen, and crissum white; flanks washed with orange-buff; feathers of thighs brown with white tips; wings black; some of the primaries narrowly edged with white, some of the greater coverts broadly tipped with white; axillars and wing-lining white; rectrices black, the four outer pairs broadly tipped with white. Iris and bill black; feet and nails light flesh-color. Length, about 180 mm. A male from Bataan Province, Luzon, measures: Wing, 82; tail, 82; culmen from base, 18; bill from nostril, 12; tarsus, 26; middle toe with claw, 23.

Adult female.—"Top of the head, mantle, and upper back olive-brown; lores, sides of the head and neck, and the chest dull gray, the chin and middle of throat being somewhat paler, almost whitish; wings washed and edged on the outer web with brown; the rest of the plumage is very similar to that of the male. Length, 183; wing, 76; tail, 81; tarsus, 27.

"An *immature female* is similar to the above, but the middle of the chin and throat is mostly white, in somewhat marked contrast to the gray chest and sides of the head and neck." (*Grant.*)

Two eggs of the Luzon shama collected at Cape Engaño, Luzon, on April 27, 1895, are thus described:

"Shape short ovate. Ground-color pale sea-green, profusely spotted and blotched all over, especially toward the larger end, with reddish brown and with some indistinct lilac under-markings. Measurements 21 mm. by 16 mm." Two eggs collected in the same locality on May 26, are "rather more oval in shape than the above and more richly marked. Measurements 23 mm. by 16 mm.

"One nest was placed in the hollowed-out stem of a dead palm broken off by the wind, the other in a hollow stump close to the ground; in both cases the nest was composed of moss and dry grass." (*Grant and Whitehead.*)

"In Marinduque we shot this species about bamboo clumps in the open. In Luzon we invariably found it in the deep woods. A male from Luzon measures as follows: Wing, 75; tail, 79; culmen, 18; tarsus, 25; middle toe with claw, 22. Bill black; legs, feet, and nails flesh-color." (*Bourns and Worcester MS.*)

543. KITTACINCLA SUPERCILIARIS Bourns and Worcester.

WHITE-EYEBROWED SHAMA.

Cittocincla superciliaris BOURNS and WORCESTER, Minnesota Acad. Nat. Sci. Occ. Papers (1894), 1, 23; SHARPE, Hand-List (1903) 4, 162; MCGREGOR, Bull. Philippine Mus. (1903), 1, 9; MCGREGOR and WORCESTER, Hand-List (1906), 86.

Cittocincla nigrorum GRANT, Ibis (1896), 547; WHITEHEAD, Ibis (1899), 218 (habits); SHARPE, Hand-List (1903), 4, 162; MCGREGOR and WORCESTER, Hand-List (1906), 86.

Masbate (*Bourns & Worcester, McGregor*); Negros (*Whitehead, Celestino*); Ticao (*McGregor*).

Male.—General color glossy black; a broad superciliary line from above lores to nape white; breast, abdomen, and crissum white with a faint buff wash on flanks; feathers of thighs brown with white tips; wings black; axillars and wing-lining white; tail black, outer pairs of rectrices with narrow white tips, wanting in one specimen. Iris dark; bill black; legs light flesh-color; nails light brown. Length, 165 mm. A male from Masbate measures: Wing, 84; tail, 73; culmen from base, 20; bill from nostril, 12; tarsus, 28; middle toe with claw, 23. A male from Ticao, wing, 79; tail, 66; culmen from base, 18; bill from nostril, 11; tarsus, 27; middle toe with claw, 22.

"A *young male,* nearly adult, has a few white feathers on chin and throat and a faint wash of light buff on the flanks. A much younger bird has many of the feathers of the back tipped with rusty brown and the greater wing-coverts and quills washed with the same color; chin and throat almost pure white; an ill-defined black collar; the entire under surface washed with light buff, deeper on the flanks.

"This well-marked species is extremely rare in Masbate. It feeds in dense thickets in the deep woods and we never heard it utter a note. The Luzon bird, *C. luzoniensis,* has a superciliary stripe, but this stripe is not nearly so broad as in this species, and as the strongly marked superciliary line is one of the most noticeable characters of the Masbate bird we have named it accordingly." (*Bourns and Worcester.*)

544. KITTACINCLA NIGRA Sharpe.

PALAWAN BLACK SHAMA.

Cittocincla nigra SHARPE, Trans. Linn. Soc. 2d. ser. Zool. (1877), 1, 335, pl. 52; Cat Birds Brit. Mus. (1883), 7, 90; Hand-List (1903), 4, 161; MCGREGOR and WORCESTER, Hand-List (1906), 86.

Balabac (*Everett*); Calamianes (*Bourns & Worcester*); Palawan (*Steere, Everett, Whitehead, Platen, Steere Exp., Bourns & Worcester, Everett, Celestino, White*).

Adult male and female.—Almost entirely glossy blue-black; some feathers of lower abdomen, flanks, and sides of back with white shafts, or with subterminal white spots which are more or less concealed; under tail-coverts black, broadly tipped with white; four central rectrices black, the others white with concealed black bases; wings black, most of the feathers edged with glossy blue-black. Length, 215 to 220 mm. A male from Palawan measures: Wing, 88; tail, 105; culmen from base, 17; bill from nostril, 12; tarsus, 26; middle toe with claw, 23. A female, wing, 81; tail, 98; culmen, from base, 17; bill from nostril, 11; tarsus, 22.

Young.—Similar to the adult but throat and breast less glossy; abdomen, flanks, and crissum entirely white, thighs brown; the flanks slightly washed with earthy brown. In more nearly adult plumage the throat and breast become glossy and the white of the abdomen is reduced in extent and broken up; the thighs become black.

"Quite common in Palawan, where we found it skulking in thickets in the deep woods, usually near or on the ground, though it would fly up into the trees if followed. In the Calamianes Islands we found it abundantly in bamboo thickets.

"Four males from Palawan average: Length, 205; wing, 87; tail, 107; culmen, 21; tarsus, 24; middle toe with claw, 22. Two females, length, 230; wing, 90; tail, 105; culmen, 20; tarsus, 25; middle toe with claw, 22. Iris dark brown to black; legs, feet, and nails brown to black; bill black. Called by natives of Palawan 'tam-be-lad-nun'." (*Bourns and Worcester MS.*)

545. KITTACINCLA CEBUENSIS Steere.

CEBU BLACK SHAMA.

Cittocincla cebuensis STEERE, List Birds and Mams. Steere Exped. (1890), 20; BOURNS and WORCESTER, Minnesota Acad. Nat. Sci. Occ. Papers (1894), 1, 58; SHARPE, Hand-List (1903), 4, 162; McGREGOR and WORCESTER, Hand-List (1906), 86; McGREGOR, Phil. Jour. Sci. (1907), 2, sec. A, 307.

Cebu (*Steere Exp.*, *Bourns & Worcester*, *McGregor*).

Adult.—Glossy blue-black; wings black; coverts, alula, and some of the secondaries edged with glossy blue-black; axillars and wing-lining similar; tail black. Two adult males measure: Wing, 90, 95; tail, 105.6, 99 (imperfect); culmen from base, 19; bill from nostril, 12; tarsus, 27, 26; middle toe with claw, 24, 23.

An *immature male* from Toledo, Cebu, October 13, differs from the adult as follows: Feathers of crown and nape tipped with dull rusty brown; wings dull seal-brown; each feather of alula and greater coverts with a subterminal spot of ocherous brown; lesser coverts black, fringed with silvery gray; lower parts dull blue-gray, tips of feathers ocherous, becoming more rusty on flanks.

"*An immature female* is slaty black above, tail dull black; wing-coverts brown, tipped with distinct spots of rufous-brown, these spots forming two irregular bars; quills fulvous-brown; primaries faintly washed on outer webs with rufous-brown; forehead brownish; lores, ring round eye, sides of face and chin light rufous-brown; center of throat and upper breast slaty gray, a few of the feathers still retaining brownish centers; rest of under surface slaty black washed with brown; under tail-coverts black with brown shaft-stripes." (*Bourns and Worcester.*)

"Apparently confined to the island of Cebu where it is very rare. Invariably found in the forest and in dense thickets close to the ground. It is both quiet and shy. We never heard it utter a note.

"Two males from Cebu average: Length, 205; wing, 90; tail, 100; culmen, 20; tarsus, 26; middle toe with claw, 24. Iris very dark brown; legs, feet, and nails dark brown, almost black; bill black. Breeding in June." (*Bourns and Worcester MS.*)

Subfamily SAXICOLINÆ.

The two species representing this subfamily in the Philippines are small; the upper tail-coverts are white, which is not true of the other Philippine *Turdidæ;* the bill is slender and the feeding habits are Muscicapine.

Genera.

a^1. First primary about one-half the second in length; tail uniform in color. **Pratincola** (p. 564)

a^2. First primary less than one-third the length of second; tail bicolored, the basal part light .... **Saxicola** (p. 565)

Genus PRATINCOLA Koch, 1816.

Bill stout; rictal bristles strong, equal to or longer than bill from nostril; wing moderate; first primary more than one-half second and longer than tarsus; tail moderate in length and rounded.

546. PRATINCOLA CAPRATA (Linnæus).

PIED CHAT.

Motacilla caprata LINNÆUS, Syst. Nat. ed. 12 (1766), **1**, 335.

Pratincola caprata SHARPE, Cat. Birds Brit. Mus. (1879), **4**, 195; Hand-List (1903), **4**, 173; OATES, Fauna Brit. Ind. Bds. (1890), **2**, 59, fig. 24 (head); WHITEHEAD, Ibis (1899), 104 (habits); OATES and REID, Cat. Birds' Eggs (1905), **4**, 161; MCGREGOR and WORCESTER, Hand-List (1906), 86.

Si-páo, Manila.

Bantayan (*McGregor*); Bohol (*Everett, McGregor*); Cebu (*Everett, Bourns & Worcester, McGregor*); Lubang (*McGregor*); Luzon (*Jagor, Everett, Möllendorff, Steere Exp., Schmacker, Bourns & Worcester, Whitehead, McGregor, Bartsch*); Masbate (*Bourns & Worcester*); Mindoro (*Everett*); Negros (*Steere Exp., Bourns & Worcester, Celestino*); Panay (*Steere, Steere Exp.*); Siquijor (*Bourns & Worcester, Celestino*); Ticao (*McGregor*). Persia, India Peninsula, Burmese provinces, Java, Borneo.

Adult male.—Most of the plumage glossy black; inner series of secondary-coverts white, forming a conspicuous patch; rump, upper tail-coverts, and crissum pure white; some feathers of flanks, lower abdomen, and thighs tipped with white; extreme bases of outer rectrices white. Bill, legs, and nails black. Length, about 130 mm. Wing, 68; tail, 50; culmen from base, 14; bill from nostril, 9; tarsus, 20. In winter the male has many feathers of head, back, breast, abdomen, and sides of body fringed with buff.

Adult female.—In fresh plumage (April); upper parts ashy gray with dark brown centers to the feathers; rump and tail-coverts rusty buff; lower parts brown; feathers of chin edged with pale whitish buff; crissum pale whitish buff; remainder of under parts ocherous brown, the feathers with darker centers; feathers of wing dark brown with lighter margins; rectrices blackish brown. In worn plumage (September) the upper parts, except uropygium, become seal-brown; wing-feathers similar from the wearing away of the light margins; under parts darker than in the fresh plumage. A female measures: Wing, 64; tail, 50; culmen from base, 13; bill from nostril, 7.5; tarsus, 20.

Young.—A young male (May) resembles the female in worn plumage, but the under parts are richer and more mottled; chin and throat buff with blackish edges to feathers; breast and abdomen rusty ocherous, the feathers of breast fringed with dull black; head, neck, and back smoky black, most of the feathers marked with small buff spots; secondaries, alula, and secondary-coverts broadly edged with rusty ocherous; edging of alula-feathers lighter; bases of inner greater coverts pure white.

Genus SAXICOLA Bechstein, 1802.

Bill slender; rictal bristles weak, the longest less than bill from nostril; wing long, flat, and pointed; first primary short and slender, less than one-third of second; tail rounded, extending very little beyond the folded wings.

547. SAXICOLA ŒNANTHE (Linnæus).

WHEATEAR.

Motacilla œnanthe Linnæus, Syst. Nat. ed. 10 (1758), **1**, 186.
Saxicola œnanthe Seebohm, Cat. Birds Brit. Mus. (1881), **5**, 391; Sharpe, Hand-List (1903), **4**, 175; Oates and Reid, Cat. Birds' Eggs (1905), **4**, 165; McGregor, Bull. Philippine Mus. (1904), **4**, 27; McGregor and Worcester, Hand-List (1906), 86.

Calayan (*McGregor*). Europe and northern Asia to Alaska; in winter to the Indian Peninsula and eastern Africa.

"*Adult male in breeding plumage.*—General color of the upper parts pale slate-gray; forehead and eye-stripe, which extends to the nape, white; lores and upper part of the ear-coverts black; wings and wing-coverts nearly black, a few traces of the autumnal buff margins to the feathers generally left; rump and upper tail-coverts white; tail white except the terminal three-fifths of the two center feathers, and the terminal fourths of the others, which are nearly black; under parts very pale buff, slightly darker on the throat and breast; axillars and under wing-coverts white with dark centers; inner margin of quills brown. Bill, legs, feet, and claws black. Wing with the third and fourth primaries nearly equal and longest; second primary sometimes as long as the fourth; bastard primary, 19 to 14 mm. Wing, 106.6 to 89; (females, 94 to 87.6); tail 62 to 51; culmen, 18 to 16; tarsus, 30 to 27.

"*Adult female in breeding plumage.*—General color of the upper parts dull brown; forehead and eye-stripe buffish white, much narrower than in the male; lores and upper part of the ear-coverts brown; wings and wing-coverts not so dark as in the male; rump and upper tail-coverts white; tail as in the male, but the dark parts not quite so dark; under parts as in the male. After the autumn molt both sexes have a buffish brown margin to every feather, so that they are scarcely distinguishable, and resemble the adult female in breeding plumage except that the quills and tail-feathers are margined with buffish brown at the tip, and the innermost secondaries and wing-coverts are similarly margined, not only at the tip but along the outside webs; the under parts are also darker in color. It is not known that *birds of the year* differ from adults.

"*Young in first plumage* resemble the female, but have obscure transverse terminal dark bars and pale centers to most of the feathers of the upper and under parts." (*Seebohm.*)

The only specimen of the wheatear recorded from the Philippines, a male from Calayan, measures: Wing, 97; tail, 57; culmen from base, 15; bill from nostril, 10; tarsus, 27.

Family **SYLVIIDÆ.**

Bill slender, short or moderately long; upper mandible with a small notch; culmen slightly curved near the tip; nostrils exposed; rictal bristles usually inconspicuous; wing rounded and curved to the body, tertials much shorter than secondaries; tarsus slender, longer than bill from gape; tail rounded, wedge-shaped, or graduate. Nearly all the members of this family are plainly colored and the sexes closely resemble each other. The young birds are unspotted; they either resemble the adults, or else they are more highly colored. Some of the genera of flycatchers are very similar to certain genera which are here placed in the *Sylviidæ.*

Characteristic species of the *Turdidæ, Muscicapidæ,* and *Sylviidæ* are easily recognized and distinguished, but the three families intergrade through intermediate genera so that even the highest authorities on classification are by no means agreed as to the respective limits of these three families.

Genera.

a^1. Tail with twelve rectrices.
b^1. Tail wedge-shaped, or at least decidedly rounded, the rectrices usually pointed.
c^1. Wing longer than tail.
d^1. First primary shorter than primary-coverts and more or less pointed.
e^1. Rictal bristles minute.. **Locustella** (p. 567)
e^2. Rictal bristles strong.. **Acrocephalus** (p. 569)
d^2. First primary longer than primary-coverts, equal to one-half the second primary or more.
e^1. Bill much longer; hind toe with claw less than exposed culmen. **Orthotomus** (p. 572)
e^2. Bill much shorter; hind toe with claw more than culmen from base. **Cisticola** (p. 579)

c^2. Wing shorter than tail.

d^1. Rictal bristles minute; tail rounded .... **Tribura** (p 571)

d^2. Rictal bristles moderate, the longest more than one-half the bill from nostril; rectrices strongly graduated .... **Megalurus** (p. 582)

b^2. Tail square; the rectrices not pointed; first primary about equal to primary-coverts; third and fourth primaries equal and longest; rictal bristles moderate .... **Acanthopneuste** (p. 584)

a^2. Tail with ten rectrices; rictal bristles well developed; first primary more than one-half the second; tail rounded or slightly graduate.

b^1. Front of tarsus scutellate; feathers of forehead and chin with their shafts stiff and extending beyond the webs .... **Horornis** (p. 586)

b^2. Front of tarsus entire; feathers of forehead and chin normal. **Phyllergates** (p. 588)

Genus LOCUSTELLA Kaup, 1829.

Bill small and slender; rictal bristles minute; wing flat and pointed, somewhat longer than tail; first primary narrow and pointed, less than primary-coverts; second primary nearly as long as third which is longest; rectrices graduated and slightly pointed, the outermost feather nearly as short as, or shorter than, under tail-coverts; tarsus and toes well developed, reaching nearly to tip of tail. Plumage obscure, spotted in the smallest species.

Species.

a^1. Larger; wing more than 60 mm.; plumage without spots or streaks.

b^1. Slightly larger; bill, tarsus, and toes decidedly heavier; bill from nostril about 11 mm.; rectrices uniform in color, the outermost pair slightly longer than the under coverts .... **fasciolata** (p. 567)

b^2. Slightly smaller; bill, tarsus, and toes decidedly more slender; bill from nostril about 10 mm.; rectrices with pale tips and subterminal blackish bars, the outermost pair slightly shorter than the under coverts. **ochotensis** (p. 568)

a^2. Smaller; wing less than 60 mm.; feathers of upper parts with conspicuous, dark, median streaks; chest, sides, and flanks usually marked with elongate dark spots .... **lanceolata** (p. 569)

548. LOCUSTELLA FASCIOLATA (Gray).

GRAY'S GRASSHOPPER WARBLER.

Acrocephalus fasciolatus GRAY, Proc. Zool. Soc. (1860), 349.

Locustella fasciolata SEEBOHM, Cat. Birds Brit. Mus. (1881), 5, 109, pl. 5; WHITEHEAD, Ibis (1899), 210 (habits, migration); SHARPE, Hand-List (1903), 4, 185; MCGREGOR and WORCESTER, Hand-List (1906), 87.

Batan (*McGregor*); Calayan (*McGregor*); Luzon (*Everett, Whitehead, Celestino*); Marinduque (*Steere Exp.*); Mindoro (*Porter*); Sulu (*Bourns & Worcester*); Tablas (*Bourns & Worcester*); Tawi Tawi (*Bourns & Worcester*). Talaut, Sangir, and Molucca Islands, eastern Siberia, China, and Japan; in winter to Batchian, Halmahera, and Morotai.

Male (*Batan Island, May*).—Above dark russet-brown; wings and tail seal-brown, edged with russet-brown; second primary edged with gray; a distinct line over lores, eye, and ear-coverts ashy gray; lores and upper ear-coverts dusky; chin and fore throat white, becoming ashy or drab-gray on cheeks, ear-coverts, sides of throat, and breast; breast ashy gray, becoming white on middle of abdomen; sides, flanks, and thighs light olive-brown; crissum yellowish olive-brown. Wing, 76; tail, 68; outermost rectrix, 45; culmen from base, 20; bill from nostril, 11; tarsus, 26; middle toe with claw, 24.

In winter the upper parts, especially the head, are lighter; the superciliary stripe, cheeks, and under parts are washed with buff and the gray is entirely obscured. The male and female are very similar if not identical in colors. A female from Calayan in fresh winter-plumage measures: Wing, 72; tail, 66; culmen from base, 19; bill from nostril, 11; tarsus, 26. A female in somewhat worn plumage, wing, 72; tail, 68; culmen from base, 19; bill from nostril, 11; tarsus, 25.

549. **LOCUSTELLA OCHOTENSIS** (Middendorf).

YELLOW GRASSHOPPER WARBLER.

Sylvia (*Locustella*) *ochotensis* MIDDENDORF, Sib. Reise (1853), 2, 185.
Locustella ochotensis SEEBOHM, Cat. Birds Brit. Mus. (1881), 5, 113; WHITEHEAD, Ibis (1899), 210 (migration); SHARPE, Hand-List (1903), 4, 186; MCGREGOR and WORCESTER, Hand-List (1906), 87.

Basilan (*McGregor*); Batan (*McGregor*); Bohol (*McGregor*); Calayan (*McGregor*); Luzon (*McGregor*); Marinduque (*Steere Exp.*); Mindanao (*Goodfellow*); Mindoro (*Whitehead*); Romblon (*McGregor*). Kurile Islands, northeastern Siberia, Greater Sunda Islands, Kamtchatka, Japan; Borneo in winter.

Adult.—Above russet-brown; feathers of head and back with darker centers; lores and a line over eye to nape ashy; cheeks and ear-coverts brown with a buff wash; jaws white; loral and malar feathers with shafts extending beyond the webs, the produced portions black; sides of the neck brown; under parts white; sides, flanks, thighs, and crissum buffy brown; a faint buff wash across fore breast; wings and tail similar to the back, the latter with obsolete, narrow bars on upper surface; rectrices dark gray below, each with a dark bar just anterior to the whitish tip. Upper mandible dusky, lower mandible light flesh-color, dusky at tip; legs and nails pale flesh-color. Length, about 165; male, wing, 74; tail, 60; culmen from base, 16; bill from nostril, 9; tarsus, 24; middle toe with claw, 23. Female, wing, 65; tail, 54; culmen from base, 15; bill from nostril, 9; tarsus, 22; middle toe with claw, 21.

Young.—In young birds the sides of the head and the entire under parts are strongly suffused with yellowish buff.

550. LOCUSTELLA LANCEOLATA (Temminck).

STREAKED GRASSHOPPER WARBLER.

Sylvia lanceolata TEMMINCK, Man. d'Orn. (1840), 4, 614.

Locustella lanceolàta SEEBOHM, Cat. Birds Brit. Mus. (1881), 5, 118; OATES, Fauna Brit. India Birds (1889), 1, 354; SHARPE, Hand-List (1903), 4, 186; OATES and REID, Cat. Birds' Eggs (1905), 4, 180, pl. 9, fig. 9; MCGREGOR and WORCESTER, Hand-List (1906), 87.

Calayan (*McGregor*); Luzon (*Heriot, McGregor*). Russia, Siberia, and central Asia; in winter to China, Andaman Islands, Indian Peninsula, and Burmese provinces.

Adult (*sexes similar*).—Above olivaceous russet-brown, each feather with a wide seal-brown shaft-streak; primaries and secondaries seal-brown edged with russet-brown, second primary edged with whitish; secondary-coverts similar to back; tail nearly uniform brown; sides of head and ear-coverts brown; a yellowish buff line above, and another below, eye; cheek and jaw buff, traversed by a narrow blackish brown line; under parts whitish, washed with buff on fore breast, sides, flanks, and crissum; feathers of these parts more or less marked with blackish brown shaft-lines. Bill dusky above, flesh-color below; legs and nails pale yellowish flesh-color. Length, 120 to 125. A male from Calayan measures: Wing, 57; tail, 45; culmen from base, 12; bill from nostril, 7; tarsus, 17. A female, wing, 53; tail, 43; culmen from base, 11; bill from nostril, 7; tarsus, 19.

"The streaks on the lower surface become reduced in aged birds. The bird least marked in my series has a few streaks only on the middle of the breast and on the flanks, with one or two faint marks on the under tail-coverts. In this state it is very like the Indian *L. straminea*. The majority of the birds are densely streaked from the chin to the tail-coverts, except on the abdomen, and all these are characterized by a richer tone of coloring beneath. The tail-coverts vary in the most extraordinary manner. In many of the birds they are entirely unmarked; in others densely streaked, and this apparently quite independently of the amount of streaking on the other parts of the lower plumage." (*Oates.*)

Genus ACROCEPHALUS Naumann, 1811.

Bill comparatively long and stout; from three to five large rictal bristles on each side of bill; wing long, flat, and pointed; first primary minute, narrow, and pointed; third primary longest, second a little shorter; tail decidedly rounded; tarsus and feet well developed.

Species.

a^1. Much smaller; wing, about 60 mm.; a blackish stripe on each side of crown.
sorghophilus (p. 570)

a^2. Much larger; wing, about 90 mm.; no blackish stripes on the crown.
orientalis (p. 571)

551. ACROCEPHALUS SORGHOPHILUS (Swinhoe).

LITTLE REED WARBLER.

Calamodyta sorghophila SWINHOE, Proc. Zool. Soc. (1863), 92 and 293.
Acrocephalus sorgophilus SEEBOHM, Cat. Birds Brit. Mus. (1881), 5, 94; SHARPE, Hand-List (1903), 4, 187; MCGREGOR and WORCESTER, Hand-List (1906), 87.

Luzon (*McGregor*). China.

Male.—Above tawny olive, uniform and more ocherous on rump and tail-coverts; head and back distinctly streaked with dark brown; lores, sides of head, and a line above each eye yellow-buff; on each side of crown a long blackish stripe bordering the superciliary line below; a dark line on upper border of ear-coverts; under parts pale buff, flanks and thighs darker; wings and tail brown and much worn. Rectrices twelve; iris dark brown. Wing, 55; tail, 49; culmen from base, 15; bill from nostril, 8; tarsus, 20; middle toe with claw, 18; hind toe with claw, 14. Bill comparatively broad and flat.

The specimen described above was killed in a bed of reeds on the border of Laguna de Bay, January 19, 1902. The only other specimen known was taken near Amoy, China, in May, 1861. The original description follows:

Type.—"Upper mandible of bill blackish brown, edge of upper and whole of lower yellow-ocher; rictus and inside of mouth yellow; iris ocherous brown; legs and toes plumbeous, with paler soles; upper parts ocherous olive, with a few rather faint streaks of blackish brown; eyebrow and cheeks ocherous, more buff-colored on the lores; over the eyebrow a black streak marks each side of the head; under parts yellowish buff, much paler on the throat, under neck, and center of belly; wing-coverts and tertiaries deep hair-brown, margined with ocherous olive; quills hair-brown edged with light chestnut-brown; tail pale hair-brown margined with reddish olive which color also tinges the rump; inner edges of the under wing edged with very pale rusty ocher. Length, 116.8; wing, 56.6; tail, 47.7; tarsi, 17.7; bill along culmen, 10.6.

"First quill very small, narrow, and pointed, about 8.6 mm. long; second quill 7 mm. shorter than the third and fourth, which are equal and longest, the fifth quill 3.8 mm. shorter than the third and fourth; the sixth 5.5 mm. shorter than the fifth. Tail much graduated, the rectrices being narrowed at their tips; tarsi thick; toes and claws strong, the hind toe and claw especially so." (*Swinhoe.*)

552. ACROCEPHALUS ORIENTALIS (Temminck and Schlegel).

ORIENTAL REED WARBLER.

Salicaria turdina orientalis TEMMINCK and SCHLEGEL, Fauna Japonica, Aves (1850), 50.

Acrocephalus orientalis SEEBOHM, Cat. Birds Brit. Mus. (1881), 5, 97; WHITEHEAD, Ibis (1899), 210 (migration); SHARPE, Hand-List (1903), 4, 187; OATES and REID, Cat. Birds' Eggs (1905), 4, 183; MCGREGOR and WORCESTER, Hand-List (1906), 87.

Batan (*McGregor*); Bohol (*McGregor*); Calayan (*McGregor*); Cebu (*Meyer, Steere Exp., McGregor*); Luzon (*Meyer, Whitehead, McGregor*); Mindanao (*Steere Exp., Goodfellow*); Mindoro (*Bourns & Worcester, McGregor*); Palawan (*Platen*). Japan, northern China, and eastern Siberia; in winter to Burmese provinces and the Malay Archipelago.

Adult male and female.—Above nearly uniform olive-brown; feathers of back, tail-coverts, and wing-coverts somewhat fringed with ocherous buff: primaries, secondaries, and rectrices dark brown, edged with olive-brown; second primary with a whitish outer web; below white, washed with buff; chin and throat nearly pure white; breast pale buff; sides, flanks, thighs, and crissum considerably darker; lores and spot behind eye brown; eyelids pale buff; a line from nostril over lores and eye to occiput pale buff; feathers of lores and jaws with produced black shaft-tips. The obscure dusky streak on throat and the pale tips to the rectrices, frequently seen in Philippine specimens, are said to be characteristic of birds of the year. Length, about 190. A male in fresh plumage from Calayan measures: Wing, 85; tail, 77; culmen from base, 19; bill from nostril, 13; tarsus, 26. A female from Calayan, wing, 80; tail, 68; culmen from base, 18; bill from nostril, 13; tarsus, 24.

This species is resident in Bohol and specimens from that island are smaller than those taken in Calayan and in Luzon during migration.

Genus TRIBURA Hodgson, 1845.

"Bill to gape equal to head or less, straight, cylindric, compressed; at base higher than broad, and having the ridge raised and keeled between the oval apert nares; tip of upper mandible scarcely inclined but distinctly notched; rictus smooth; wings short and feeble but not much or equally gradated; first two quills conspicuously gradated, three next subequal and longest; tail more or less elongated and gradated throughout, rather cuneate than fan-shaped and somewhat rigid or worn; tarsi stout, smooth, longer than the mid toe and nail; toes and nails simple, compressed, inner fore with its nail exceeding the outer fore, central elongate, hind least; nails acute." (*Hodgson.*)

553. **TRIBURA SEEBOHMI** (Grant).

SEEBOHM'S GRASS WARBLER.

Lusciniola seebohmi GRANT, Bull. Brit. Orn. Club. (1895), 4, 40; Ibis (1895), 443; WHITEHEAD, Ibis (1899), 211 (habits).

Tribura seebohmi SHARPE, Hand-List (1903), 4, 191; McGREGOR and WORCESTER, Hand-List (1906), 88.

Luzon (*Whitehead*).

"Seebohm's grass warbler belongs to the section of the genus *Lusciniola* in which the first primary is half or more than half the length of the second, the sides of the head and ear-coverts brown, the throat pure white and devoid of spots, and the tail considerably longer than the wing.

"Clearly the nearest allies to this species are *L. luteiventris* and *L. mandellii*. In these three species the wing-formula is as follows:

"*L. luteiventris*. Fourth quill slightly longer than, rarely subequal to, the fifth; third intermediate between fifth and sixth.

"*L. mandellii, L. seebohmi*. Fifth somewhat longer than the fourth and sixth, which are subequal, and distinctly longer than the third.

"The present species differs from both its allies in having the general color of the upper parts browner, the white on the chin and throat more extensive and shading into grayish on the sides of the neck; while the sides and flanks are more grayish brown in tint and but slightly washed with buff; the lower mandible appears to have been yellowish white, as in *L. luteiventris*. Length, 147; wing, 51; tail, 63.5; tarsus, 20; middle toe with claw, 19." (*Grant.*)

Genus ORTHOTOMUS Horsfield, 1821.

Bill long, depressed basally, compressed near the tip, with no notch at tip of mandible; rictal bristles few and moderate in length; no bristles on forehead; chin-feathers without lengthened shafts; wing short, rounded, and curved to the body; first primary less than one-half second, the latter considerably shorter than the fourth; fifth, sixth, and seventh subequal and longest; secondaries but little shorter than primaries; rectrices long, narrow, strongly graduated, and their tips rounded; tarsus about equal to culmen from base; outstretched feet usually reaching to, or beyond, the tip of tail; colors largely green, chestnut, gray, and white; or green, black, and gray or yellow.

Species.

- a^1. Top of head, or the forehead at least, chestnut.
  - b^1. Chin, throat, and ear-coverts white, or gray streaked with white.
    - c^1. Back bright olive-green.
      - d^1. Chestnut of head confined to frontal and circumocular regions, not extending to occiput.
        - e^1. Chestnut of forehead sharply defined posteriorly; crown gray. **frontalis** (p. 573)

- e^2. Chestnut of forehead not sharply defined, but merging into dull olive-gray on crown .... **mearnsi** (p. 574)
- d^2. Chestnut of head covering the entire forehead, crown, and occiput. **chloronotus** (p. 575)
- c^2. Back gray.
  - d^1. Outer webs of rectrices green........ **castaneiceps** (p. 574)
  - d^2. Outer webs of rectrices dull chestnut, gray basally.
    - e^1. Wing-feathers edged with green; throat and breast white, streaked with gray .... **derbianus** (p. 575)
    - e^2. Wing-feathers edged with gray; throat and breast white. **ruficeps** (p. 576)
- b^2. Chin and ear-coverts, as well as forehead and crown, cinnamon-rufous. **cineraceous** (p. 576)
- a^2. Top of head smoky gray or black; throat black in the adult.
  - b^1. Thighs green; middle of breast and of abdomen black or smoky gray.
    - c^1. Ear-coverts white forming a conspicuous patch; top of head dark smoky gray .... **cinereiceps** (p. 577)
    - c^2. Ear-coverts black; top of head black; eyebrow and eye-circle white. **nigriceps** (p. 578)
  - b^2. Thighs chestnut; entire breast and abdomen bright yellow. **samarensis** (p. 578)

554. ORTHOTOMUS FRONTALIS Sharpe.

SHARPE'S TAILORBIRD.

Orthotomus frontalis SHARPE, Ibis (1877), 112, pl. 2, fig. 1; Trans. Linn. Soc. 2d ser. Zool. (1877), 1, 336 (part); Cat. Birds Brit. Mus. (1883), 7, 220 (part); Hand-List (1903), 4, 192 (part); WHITEHEAD, Ibis (1899), 219 (habits); MCGREGOR and WORCESTER, Hand-List (1906), 88 (part).

Bohol (*Everett, McGregor*); Dinagat (*Everett*); Leyte (*Steere Exp., Whitehead*); Mindanao (*Steere, Everett, Steere Exp., Bourns & Worcester, Goodfellow, Celestino, Clemens, Bartsch*); Samar (*Steere Exp., Bourns & Worcester, Whitehead*).

Adult.—Forehead, lores, and ring around eye rufous-chestnut, sharply defined against the ashy gray crown; ear-coverts, sides of neck, and hind neck ashy gray like the crown; back, rump, tail-coverts, and edges of wing-feathers and of rectrices bright olive-green, the last with a dusky subterminal band; under parts white, more or less streaked with cinereous on throat and breast; sides ashy; flanks and under tail-coverts washed with light yellowish green; thighs chestnut. Length, about 115. A male from northern Mindanao measures: Wing, 44; tail, 35; culmen from base, 15; bill from nostril, 11; tarsus, 19. A female from Bohol, wing, 41; tail, 34; culmen from base, 16; bill from nostril, 11; tarsus, 19.

Specimens in fresh plumage have the occiput more or less washed with green; the dusky spots at end of tail are variable.

555. ORTHOTOMUS MEARNSI McGregor.

MEARNS'S TAILORBIRD.

Orthotomus frontalis SHARPE, Trans. Linn. Soc. 2d. ser. Zool. (1877), **1**, 336 (part); MCGREGOR and WORCESTER, Hand-List (1906), 88 (part).
Orthotomus mearnsi MCGREGOR, Phil. Jour. Sci. (1907), **2**, sec. A, 289.

Basilan (*Steere, Everett, Steere Exp., Bourns & Worcester, McGregor*).

Adult.—Similar to *Orthotomus frontalis,* but the chestnut of forehead extending on crown to, or nearly to, posterior border of eye, not ending abruptly; the whole crown and nape slightly suffused with chestnut, the crown never clear slate-gray as in *O. frontalis;* behind eye the chestnut extends over the sides of nape. The type measures: Length, 114; wing, 47; tail, 45; culmen from base, 18; bill from nostril, 11.5; tarsus, 20. Female, wing, 47; tail, 40; bill from nostril, 11; tarsus, 20.

556. ORTHOTOMUS CASTANEICEPS Walden.

CHESTNUT-HEADED TAILORBIRD.

Orthotomus castaneiceps WALDEN, Ann. & Mag. Nat. Hist. (1872), **10**, 252; SHARPE, Cat. Birds Brit. Mus. (1883), **7**, 223; Hand-List (1903), **4**, 192; WHITEHEAD, Ibis (1899), 220; MCGREGOR and WORCESTER, Hand-List (1906), 88.
Orthotomus panayensis STEERE, List Bds. & Mams. Steere Exped. (1890), 20.

Sa-gua-ti, Ticao; *ta-gua-ti,* Masbate and Bantayan.

Bantayan (*McGregor*); Guimaras (*Meyer, Steere Exp.*); Masbate (*Bourns & Worcester, McGregor*); Negros (*Everett, Steere Exp., Bourns & Worcester, Whitehead*); Panay (*Murray, Steere, Steere Exp., Bourns & Worcester*); Ticao (*McGregor*).

Adult.—Top of head from bill to neck, lores, a broad line under eye, and upper part of ear-coverts chestnut; back, rump, and tail-coverts slate-gray; the rump and tail-coverts green in some specimens; wing-feathers and rectrices edged with bright olive-green; tail with a dusky band near its tip; under parts white; throat and breast streaked with slate-gray; sides and flanks more or less washed with ashy gray; thighs chestnut, flanks and crissum washed with green in some specimens. Length, about 150. A male from Bantayan measures: Wing, 57; tail, 55; culmen from base, 20; bill from nostril, 12; tarsus, 23. A female, wing, 50; tail, 46; culmen from base, 18; tarsus, 22.

"Steere has attempted to separate the Panay tailorbird from that of Guimaras and Negros, but after a most careful examination of a large series of specimens from Panay, Negros, and Masbate we are compelled to say that there is not the slightest difference between the birds from the three islands. Their size is the same. The wash of olive-green on the back, on which Doctor Steere relied to separate the Panay birds, is a variable character present in some birds, absent in others shot at the same season. It occurs in birds from Negros and Masbate as well as those from Panay. The presumptive evidence against finding one species of *Orthotomus* in Panay and another in Guimaras is of course very strong. Guimaras is to all intents and purposes a part of Panay and there are no other known differences between the birds of the two islands. Masbate is a new locality for the species." (*Bourns and Worcester.*)

"The chestnut-headed tailorbird frequents low bushes in open country, also the mangrove swamps; less common in the woods. A noisy bird, its note being very similar to that of *O. frontalis.*" (*Bourns and Worcester MS.*)

557. ORTHOTOMUS DERBIANUS Moore.

DERBY'S TAILORBIRD.

Orthotomus derbianus MOORE, Proc. Zool. Soc. (1854), 309, pl. 76; SHARPE, Cat. Birds Brit. Mus. (1883), 7, 224; Hand-List (1903), 4, 192; WHITEHEAD, Ibis (1899), 220 (habits); MCGREGOR and WORCESTER, Hand-List (1906), 88.

Catanduanes (*Whitehead*); Luzon (*Cuming, Everett, Möllendorff, Bourns & Worcester, Whitehead, McGregor*).

Adult.—Top of head from bill to nape, lores, narrow line under eye, and upper parts of ear-coverts chestnut; back, rump, and tail-coverts cinereous; wing-feathers brown, edged with olive-green; tail dull chestnut, edged with gray at base; under parts light gray, streaked with white on throat and breast; thighs chestnut; Iris and legs tan-brown; nails flesh-color. Length, about 140. Male, wing, 50; tail, 50; culmen from base, 19; bill from nostril, 12; tarsus, 20.

"Habits similar to those of *O. frontalis.* A male measures as follows: Wing, 47; tail, 47; culmen, 18; tarsus, 19.5; middle toe with claw, 18. A female, wing, 46; tail, 41; culmen, 19; tarsus, 19.5; middle toe with claw, 17.5." (*Bourns and Worcester MS.*)

558. ORTHOTOMUS CHLORONOTUS Grant.

GREEN-BACKED TAILORBIRD.

Orthotomus chloronotus GRANT, Bull. Brit. Orn. Club (1895), 3, 2; Ibis (1896), 117, pl. 3, fig. 1; GRANT and WHITEHEAD, Ibis (1898), 240 (eggs); WHITEHEAD, Ibis (1899), 220; SHARPE, Hand-List (1903), 4, 192; OATES and REID, Cat. Birds' Eggs (1905), 4, 191, pl. 9, fig. 12; MCGREGOR and WORCESTER, Hand-List (1906), 88.

Pi-pit ma-na-ná-hi, Manila.
Luzon (*Whitehead, McGregor*).

Adult.—Differs from *Orthotomus derbianus* in having the entire back, rump, upper tail-coverts, and crissum olive-green and the rectrices edged basally with olive-green. A male measures: Wing, 49; tail, 47; culmen from base, 18; bill from nostril, 12; tarsus, 21. A female, wing, 50; culmen from base, 18; bill from nostril, 12; tarsus, 19.

Three eggs of the green-backed tailorbird from Isabela Province, Luzon, collected by Whitehead on May 29, 1894, are described as follows: "Shape ovate. Ground-color pure white, thinly spotted and dotted all over with brown-lake over-markings and a few pale reddish lilac undermarkings. Measurements 16 mm. by 13 mm.

"The nest of the green-backed tailorbird is of the ordinary type, being a pocket formed by two leaves sewn together. It was placed among the herbage by the side of a path about 8 inches [20 cm.] from the ground. On the 19th of May a second nest was found on a small islet in a stream where a few slender large-leaved plants were growing just above the water. This nest contained two young birds." (*Grant and Whitehead.*)

559. **ORTHOTOMUS RUFICEPS** (Lesson).

RUFOUS-HEADED TAILORBIRD.

Edela ruficeps Lesson, Traité d'Orn. (1830), 309.

Orthotomus ruficeps Sharpe, Cat. Birds Brit. Mus. (1883), 7, 224; Hand-List (1903), 4, 193; McGregor and Worcester, Hand-List (1906), 88.

Balabac (*Everett*); Calamianes (*Bourns & Worcester*); Palawan (*Steere, Everett, Steere Exp., Bourns & Worcester, McGregor, White, Celestino*); Sibutu (*Everett*); Sitanki (*Bartsch*). Malay Peninsula, southern Tenasserim, Sumatra, Borneo.

Adult.—Top of head, lores, and upper ear-coverts chestnut; back, rump, and tail-coverts ashy gray; wing-feathers blackish, edged with ashy gray; rectrices chestnut, basal one-third or more ashy gray or brown; under parts including cheeks, and lower part of ear-coverts, silky white; breast, sides, flanks, and crissum washed more or less with pale buff. Length, about 125. Male, wing, 48; tail, 42; culmen from base, 17; bill from nostril, 12; tarsus, 20. Female, wing, 45; tail, 40; culmen from base, 16; bill from nostril, 11; tarsus, 19.

In certain individuals (young?), each rectrix, except the two outer pairs, has a large black spot near its tip.

"This tailorbird is often found in the deepest forest; its habits are like those of the species already described. Birds from the Calamianes Islands average larger than those from Palawan. Four females from Palawan average: Length, 114; wing, 44; tail, 37; culmen, 17.5; tarsus, 19; middle toe with claw, 15. Seven males from the Calamianes Islands, length, 130; wing, 50.5; tail, 46; culmen, 19; tarsus, 22; middle toe with claw, 17. Iris light brown; legs, feet, and nails very light brown; upper mandible light brown, lower nearly white." (*Bourns and Worcester MS.*)

560. **ORTHOTOMUS CINERACEUS** Blyth.

ASHY TAILORBIRD.

Orthotomus cineraceus Blyth, Jour. As. Soc. Bengal (1845), 14, 489; Sharpe, Cat. Birds Brit. Mus. (1883), 7, 225; Hand-List (1903), 4, 193; McGregor and Worcester, Hand-List (1906), 88.

Cagayan Sulu (*Guillemard, Mearns*). Malay Peninsula, Sumatra, Borneo.

Male (*Cagayan Sulu*).—Forehead, crown, chin, entire sides of face, and ear-coverts chestnut-rufous; back dark gray; under parts gray, lighter on abdomen; wings dark brown, edged with lighter brown; tail with an indistinct, dark subterminal band.

"*Adult male.*—General color above clear ashy gray; the crown, sides of head, including the cheeks, ear-coverts, and chin bright cinnamon-rufous, the hinder crown and occiput gradually shading off into brown as they approach the hind neck; throat, neck, and under parts generally ashy gray; the center of the abdomen and under tail-coverts pure white; thighs deep cinnamon-rufous; under wing-coverts washed with rufous, as also is the edge of the wing; lower surface of quills dark brown, edged along the inner web with rufous-white; wings above brown, somewhat washed with olive and not so gray as the back, the primaries narrowly edged with whity brown; tail light brown, with paler brown margins, the outer feathers tipped with white, before which is a tolerably distinct subterminal bar of dark brown; bill in skin light horn-brown, the under mandible paler and more yellowish. 'Legs pale warm brown; iris naples-yellow.' (*Everett.*) Length, 119; culmen, 14; wing, 47; tail, 44; tarsus, 19.

"*Female.*—Differs from the adult male in being white below, without the gray throat, although indications of the latter are generally seen in the grayish shade more or less observable on the lower throat and sides of breast. The cinnamon-color of the chin is also difficult to trace, being so faintly pronounced.

"*Young.*—General color above olive-brown; quills brown, externally washed with olive-green; tail brown, tipped obscurely with whity brown, with a subterminal shade of black, scarcely forming a spot; ear-coverts pale rufescent; under surface of body dull yellowish white, the thighs obscure fawn-color; center of the body pale yellowish, the sides of the breast and flanks obscurely washed with greenish." (*Sharpe.*)

561. **ORTHOTOMUS CINEREICEPS** Sharpe.

ASHY-HEADED TAILORBIRD.

Orthotomus cinereiceps SHARPE, Ibis (1877), 113, pl. 2, fig. 2; Trans. Linn. Soc. 2d ser. Zool. (1877), 1, 337; Cat. Birds Brit. Mus. (1883), 7, 222; Hand-List (1903), 4, 192; MCGREGOR and WORCESTER, Hand-List (1906), 88.

Basilan (*Steere, Everett, Steere Exp., Bourns & Worcester, McGregor*); Mindanao (*Everett, Steere Exp., Bourns & Worcester*).

Adult.—Entire top of head, lores, and hind neck dark ashy gray; a large white patch on ear-coverts; remainder of upper parts olive-green, lighter on tail-coverts; wing-feathers blackish, edged with green; rectrices olive-brown, edged with green; cheeks, chin, and throat black; fore breast ashy gray; center of lower breast and abdomen white; sides, flanks, thighs, and crissum washed with yellow. A male from Basilan measures: Wing, 47; tail, 55; culmen from base, 16.5; bill from nostril, 11; tarsus, 21.

Young.—The immature bird resembles the corresponding plumage in *O. nigriceps,* having more or less white on the chin and throat.

"Very common in Basilan. Eight from Basilan measure: Length, 126; wing, 47; tail, 76; culmen, 18.5; tarsus, 21; middle toe with claw, 17.5. Six females, length, 111; wing, 45; tail, 41; tarsus, 19.5; middle toe with claw, 16. Iris brown; legs, feet, and nails very light brown, in some cases almost white; upper mandible nearly white, lower very light brown. Breeding in Basilan in August." (*Bourns and Worcester MS.*)

562. ORTHOTOMUS NIGRICEPS Tweeddale.

BLACK-HEADED TAILORBIRD.

Orthotomus nigriceps TWEEDDALE, Proc. Zool. Soc. (1877), 828, pl. 85; SHARPE, Cat. Birds Brit. Mus. (1883), 7, 222; Hand-List (1903), 4, 192; MCGREGOR and WORCESTER, Hand-List (1906), 88.

Mindanao (*Everett, Celestino*).

Adult.—Loral feathers white with black tips; ring around eye and superciliary stripe to above ear-coverts white; remainder of head, hind neck, sides of neck, chin, throat, and chest black; back, rump, and tail-coverts olive-green; wing-feathers blackish, edged with green, brighter and more yellow on greater coverts and bend of wing; rectrices brown, edged with green; middle of breast and abdomen smoky gray; sides, flanks, thighs, and crissum olive-green. Length, about 125. A male from northern Mindanao measures: Wing, 46; tail, 45; culmen from base, 16; bill from nostril, 11; tarsus, 22.

Young.—In immature birds the cheeks, chin, throat, and breast are white.

563. ORTHOTOMUS SAMARENSIS Steere.

YELLOW-BREASTED TAILORBIRD.

Orthotomus samarensis STEERE, List Birds & Mams. Steere Exped. (1890), 20; GRANT, Ibis (1897), 228; WHITEHEAD, Ibis (1899), 220 (habits); SHARPE, Hand-List (1903), 4, 192; MCGREGOR and WORCESTER, Hand-List (1906), 88.

Bohol (*McGregor*); Leyte (*Whitehead*); Samar (*Steere Exp., Bourns & Worcester, Whitehead*).

Adult male.—Entire head, neck, chin, throat, and middle of fore breast black; back and rump dull olive-green brighter around the neck; rump and tail-coverts dull russet-brown; wing-feathers blackish, edged with olive-green, the bend of wing and tips of greater median coverts yellow; rectrices brown, edged with russet; breast, sides of breast, and of neck, and abdomen lemon-yellow becoming olivaceous on sides, flanks, and crissum; thighs dull chestnut. The black of fore breast is sharply defined against the yellow, and does not extend over the sides of the chest as it does in *O. nigriceps,* but is confined to the central parts of the chest, its posterior outline being rounded. All the specimens known have more or less white on the chin and malar region, but this is variable in extent and is probably a sign of immaturity as it is in *O. nigriceps.* A male from Bohol measures: Length, 127; wing, 44; tail, 39; culmen from base, 15; bill from nostril, 11; tarsus, 21.

The *female* is unknown.

"Iris light brown; bill brownish black, mandible pinkish brown; legs yellowish flesh-color. This bird has a sweet and powerful song and in this respect it differs from the other species. It is very shy and difficult to obtain." (*Whitehead.*)

"The yellow-breasted tailorbird is extremely rare. A single specimen was secured by the Steere Expedition, and we were able to secure but one more. Both birds were shot in deep forest close to the bank of a stream. Our specimen, a male, measures: Length, 114; wing, 42.6; tail, 40; culmen, 19; tarsus, 21; middle toe with claw, 18. Iris chocolate-brown; legs, feet, and nails very light brown; bill black. Breeding in August." (*Bourns and Worcester MS.*)

Genus CISTICOLA Kaup, 1829.

Bill small, slender, and sharply pointed; culmen gently curved in its terminal half; bill from nostril equal to hind-toe without claw; wing somewhat rounded and flat; difference between the length of primaries and of secondaries less than first primary; first primary slender, much less than one-half the second, the latter nearly as long as third; fourth and fifth equal and longest; rectrices long, much graduated, their tips rounded; the tail is similar to that of *Orthotomus,* but the feathers are much wider; tarsus and feet well developed, the outstretched toes reaching to or beyond tip of tail. Birds of this genus present puzzling seasonal changes of plumage. The tail is longer in the winter than in the breeding season, and the female is somewhat smaller than the male. The seasonal variation in color is great and has led ornithologists to name several species which do not exist. It is not certain that the smaller species found in the Philippines is really *C. exilis,* and it may be either *C. erythrocephala* Jerdon or *C. semirufa* Cabanis.*

Species.

a^1. Larger, wing and tail longer; breeding male with top of head ocherous-buff, streaked with blackish brown, and with tail about 40 mm.. cisticola (p. 580)

a^2. Smaller, wing and tail shorter, breeding male with top of head golden buff or tawny, and tail about 30 mm... exilis (p. 581)

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* Cf. Grant, *Ibis* (1896), 117.

564. CISTICOLA CISTICOLA (Temminck).

TEMMINCK'S CISTICOLA.

Sylvia cisticola TEMMINCK, Man. d'Orn. (1820), 1, 228.
Cisticola cisticola SHARPE, Cat. Birds Brit. Mus. (1883), 7, 259; Hand-List (1903), 4, 197; WHITEHEAD, Ibis (1899), 221 (habits); OATES and REID, Cat. Birds' Eggs (1905), 4, 191; MCGREGOR and WORCESTER, Hand-List (1906), 89.

Gug-nás, Batan; *Tic-tic-ru-bo*, Calayan.

Batan (*McGregor*); Bohol (*Everett*); Calayan (*McGregor*); Camiguin N. (*McGregor*); Fuga (*McGregor*); Luzon (*Heriot, Steere Exp., Whitehead, Bartsch*); Mindanao (*Bourns & Worcester*); Sulu (*Bartsch*). Indian and Malay Peninsulas, southern Europe, Indo-Chinese countries, Greater and Lesser Sunda Islands, Ceylon, China, Africa, Celebes.

Male, in worn plumage (*Batan Island, June*).—Above earthy brown; head and neck nearly uniform, much faded; feathers of back and tail-coverts with wide blackish brown centers; lores and superciliary line white; cheeks, ear-coverts, and under parts white; flanks and thighs ocherous-buff; wing-feathers dark or blackish brown with whitish edges; rectrices dark brown basally, followed by a wide ocherous-buff space, subterminal band blackish brown, wide tip white. Wing, 53; tail, 40; culmen from base, 12; bill from nostril, 8; tarsus, 23.

Male and female in fresh plumage (*Calayan Island, November*).—Similar to the male described, but feathers on head blackish brown, edged with buff; neck, rump, and edges of dorsal feathers dark buff, more rusty buff on rump; edges of wing-feathers wider and more rusty than in the worn plumage; middle pair of rectrices dark buff with blackish shaft-streaks, the shafts light; outermost pair of rectrices with outer webs and wide tips white, the greater part of inner webs blackish; remaining rectrices with wide white tips and subterminal black bands, the latter fading into dark brown toward base of tail; under part of body white; breast and crissum washed with buff; flanks and thighs rusty buff. Male, wing, 56; tail, 53; culmen from base, 11; bill from nostril, 7; tarsus, 22. Female, wing, 48; tail, 46; culmen from base, 10; bill from nostril, 7; tarsus, 20.

On the authority of Colonel Legge, Sharpe says that in the male the inside of the mouth is black, while in the female it is fleshy.

"Common in the deep grass of the open fields. The habits of the various species of this genus found in the Philippines are practically the same. They live in the grass, and when flushed fly in a curious, jerky way for a short distance, and then drop back into the grass where they instantly disappear. They sometimes perch on tall grass stems or low bushes, and make a series of noises more like the notes of some great grasshopper than those of a bird. We several times found them perched in trees and singing. Four females from Mindanao measure: Length, 105; wing, 46; tail, 38; culmen, 12; tarsus, 19; middle toe with claw, 17. Legs, feet, and nails pale reddish brown; upper mandible nearly black, lower pale at tip, black at base." (*Bourns and Worcester MS.*)

565. CISTICOLA EXILIS (Vigors and Horsfield).

GOLDEN-HEADED CISTICOLA.

Malurus exilis VIGORS and HORSFIELD, Trans. Linn. Soc. (1825), 15, 223.
Cisticola exilis SHARPE, Cat. Birds Brit. Mus. (1883), 7, 269; Hand-List (1903), 4, 198; WHITEHEAD, Ibis (1899), 221 (habits); OATES and REID, Cat. Birds' Eggs (1905), 4, 194; MCGREGOR and WORCESTER, Hand-List (1906), 89.

Pí-rot, Bohol, Siquijor; *pi-pit co-gon*, Manila.

Bantayan (*McGregor*); Bohol (*McGregor*); Calamianes (*Bourns & Worcester*); Caluya (*Porter*); Cebu (*Bourns & Worcester, McGregor*); Leyte (*Bartsch*); Lubang (*McGregor*); Luzon (*Steere Exp., Whitehead, McGregor*); Marinduque (*Steere Exp.*); Masbate (*Bourns & Worcester*); Mindanao (*Everett, Bourns & Worcester*); Mindoro (*Bourns & Worcester, McGregor*); Negros (*Everett, Bourns & Worcester*); Panay (*Bourns & Worcester*); Romblon (*Bourns & Worcester*); Samar (*Bourns & Worcester*); Semirara (*McGregor & Worcester*); Sibay (*McGregor & Worcester*); Sibuyan (*Bourns & Worcester*); Siquijor (*Bourns & Worcester, Celestino*); Sulu (*Guillemard, Bourns & Worcester*); Tablas (*Bourns & Worcester*); Ticao (*McGregor*); Verde (*McGregor*). Southern China, India Peninsula, Burmese provinces, Malay Peninsula and Archipelago, Australia, Formosa.

Adult male (*May to August*).—Top of head golden buff becoming dusky on hind neck; back ashy gray heavily streaked with black; lower back, rump, and tail-coverts dark tawny buff; under parts heavily washed with tawny buff, most heavily on sides and thighs; middle of breast and thighs lighter and nearly white; wing-feathers blackish brown, more or less edged with ashy gray or rusty buff; tail blackish, tipped with dark buff. A male from Bohol measures: Wing, 42; tail, 31; culmen from base, 10; bill from nostril, 6; tarsus, 29.

Female.—Similar to the male, but top of head fulvous-brown, heavily streaked with black.

Male in non-breeding plumage resembles the female, having a streaked crown and the under parts mostly white.

Young, in first plumage, resemble the adult in non-breeding plumage, but the under parts, especially the face, throat, and breast, are washed with pale lemon-yellow.

"Three males from Sulu measure: Length, 90; wing, 40.6; tail, 35.5; culmen, 11.6; tarsus, 17; middle toe with claw, 14. Two females, length, 97; wing, 40; tail, 36.5; culmen, 12; tarsus, 18; middle toe with claw, 15." (*Bourns and Worcester MS.*)

Genus MEGALURUS Horsfield, 1821.

Bill small and slender, culmen gently curved; bill from nostril a little less than hind toe without claw; rictal bristles few and small; first primary more than one-half second, the latter considerably exceeded by third; fifth and sixth equal and longest; rectrices long, pointed, and much graduated, the inner ones usually considerably abraded; tail much longer than wing; tarsus long and heavy; toes short; tarsus about two-fifths of wing.

Species.

*a*¹. Much larger; wing, about 100 mm.; tarsus, about 38; top of head earthy brown. **palustris** (p. 582)

*a*². Much smaller; wing, about 70 mm.; tarsus, about 28; top of head rusty brown. **tweeddalei** (p. 583)

566. MEGALURUS PALUSTRIS Horsfield.

STRIATED MARSH WARBLER.

Megalurus palustris HORSFIELD, Trans. Linn. Soc. (1820), 13, 159; SHARPE, Cat. Birds Brit. Mus. (1881), 7, 123; Hand-List (1903), 4, 202; OATES, Fauna Brit. Ind. Bds. (1889), 1, 383, fig. 122 (head); WHITEHEAD, Ibis (1899), 219 (habits); OATES and REID, Cat. Birds' Eggs (1905), 4, 199; MCGREGOR and WORCESTER, Hand-List (1906), 89.

Su-nód ca-la-bao, Manila.

Bohol (*McGregor*); Catanduanes (*Whitehead*); Luzon (*Cuming, Kittlitz, Everett, Steere Exp., Whitehead, Bourns & Worcester, McGregor, Bartsch*); Marinduque (*Steere Exp.*); Masbate (*Bourns & Worcester*); Mindanao (*Mearns*); Mindoro (*Steere Exp., Everett, Schmacker, Bourns & Worcester, McGregor*); Samar (*Steere Exp.*); Ticao (*McGregor*). Manipur, Burmese provinces, southeastern New Guinea, northern and central India to Bhutun and Buxa Doars, Assam, Java.

Adult.—Above sandy buff; back heavily streaked with black; top of head and tail-coverts faintly streaked with brown; superciliary line white; ear-coverts and space behind eye sandy brown; lores and cheeks whitish; under parts white; sides of breast, flanks, thighs, and crissum washed with buff; lower throat, sides, and crissum with dark brown shaft-lines; wing-feathers blackish, edged with pale sandy buff; basal portion of primaries and secondaries edged with light rusty buff; rectrices brown, edged with lighter brown. Iris brown; upper mandible brown, lower mandible horn-blue; legs and feet brown. In worn plumage the upper parts appear much blacker and the shaft-streaks on under parts are more prominent. A male from Luzon measures: Wing, 100; tail, 142; culmen from base, 18; bill from nostril, 12; tarsus, 36. A female in worn plumage, wing, 85; tail, 113; culmen from base, 18; bill from nostril, 11; tarsus, 33.

Young.—Immature birds are distinguished by having sides of head and under parts washed with pale lemon-yellow. In Benguet Province, Luzon, this species was found breeding during April and May.

"The striated marsh warbler is found about the open fields. It runs rapidly on the ground and skulks in bamboo thickets and patches of tall grass and weeds. It soars and attempts to sing while on the wing; also perches at the very top of bamboo clumps, and 'sings' vigorously." (*Bourns and Worcester MS.*)

567. MEGALURUS TWEEDDALEI McGregor.

TWEEDDALE'S MARSH WARBLER.

Megalurus ruficeps, not *Megalurus ? ruficeps* Sykes, Proc. Zool. Soc. (1832), 91, TWEEDDALE, Ann. & Mag. Nat. Hist. (1877), 20, 95; Proc. Zool. Soc. (1877), 695, pl. 72; SHARPE, Cat. Birds Brit. Mus. (1881), 7, 125; Hand-List (1903), 4, 202; GRANT and WHITEHEAD, Ibis (1898), 240, pl. 5, fig. 7 (eggs); WHITEHEAD, Ibis (1899), 219 (habits); OATES and REID, Cat. Birds' Eggs (1905), 4, 200, pl. 9, fig. 19; MCGREGOR and WORCESTER, Hand-List (1906), 89.

Megalurus tweeddalei MCGREGOR, Phil. Jour. Sci. (1908), 3, sec. A, 283.

Banton (*Celestino*); Basilan (*Everett, Bourns & Worcester*); Bohol (*Steere Exp., McGregor*); Cebu (*Everett, Steere Exp., Bourns & Worcester, McGregor*); Guimaras (*Steere Exp.*); Lubang (*McGregor*); Luzon (*Everett, Whitehead, McGregor*); Marinduque (*Steere Exp.*); Masbate (*McGregor*); Mindanao (*Platen, Goodfellow, Celestino*); Mindoro (*Bourns & Worcester, McGregor*); Negros (*Everett, Steere Exp., Bourns & Worcester, Whitehead, Keay, Celestino*); Panay (*Steere Exp., Bourns & Worcester*); Romblon (*Bourns & Worcester, McGregor*); Samar (*Whitehead*); Sibuyan (*McGregor*); Siquijor (*Bourns & Worcester*); Tablas (*Bourns & Worcester*); Ticao (*McGregor*).

Adult.—Entire top of head rufous-brown; sides of neck and back olive-gray, the latter heavily streaked with blackish brown; lower back and rump olive-brown; tail-coverts olive-gray with narrow brown shaft-lines; lores, superciliary line, cheeks, and ear-coverts ashy gray; a rufous line behind eye; under parts whitish; sides ashy gray, flanks browner; thighs and crissum buff; wings and tail brown with lighter brown edges. A male from Mindanao measures: Wing, 69; tail, 107; culmen from base, 17; bill from nostril, 9; tarsus, 28. A female from Luzon, wing, 66; tail, 114; culmen from base, 15; bill from nostril, 9; tarsus, 27.

"Five males average: Length, 225; wing, 71; tail, 109; culmen, 18.5; tarsus, 27.6; middle toe with claw, 28. Five females, length, 211; wing, 68; tail, 104; culmen, 18.5; tarsus, 27.6; middle toe with claw, 28. Iris brown; legs and feet light brown." (*Bourns and Worcester MS.*)

Three eggs of Tweeddale's marsh warbler, collected by Steere in Marinduque, May 8, 1888, are thus described: "Shape ovate. Ground-color very pale pinkish white, sparingly marked all over with small blotches and minute dots of light red and pale violet-gray under-markings, the latter forming a more or less distinct zone round the larger pole. Measurements 21 mm. by 16 mm. Nest of the bulbul type, lined with fine wiry grasses and fiber." (*Grant and Whitehead.*)

Genus ACANTHOPNEUSTE Blasius, 1858.

Bill slender and acute, a slight notch near its tip; rictal and nasal bristles short; wing long and pointed; first primary very short, slender and acute, usually little more or less in length than primary-coverts; third and fourth primaries longest; tail moderate in length and square; tarsus and toes slender; bill from nostril less than one-half tarsus and equal to hind toe with half its claw; divisions between tarsal scutes obsolete. Upper parts dull olive-green, under parts pale yellow or white. The birds of this genus resemble some of the small flycatchers (*Cryptolopha*), but are distinguished by their short first primary.

Species.

a¹. Second primary equal to or greater than the sixth.
  b¹. First primary shorter, from 7.5 to 11.5 mm. in length, equal to or less than the primary-coverts; under parts grayer........................... **borealis** (p. 584)
  b². First primary longer, from 12.5 to 15 mm. in length, and longer than primary-coverts; under parts yellower.. **xanthodryas** (p. 585)
a². Second primary equal to or greater than the ninth, and from 17 to 20 mm. in length; under parts grayish yellow.. **lugubris** (p. 586)

568. ACANTHOPNEUSTE BOREALIS (Blasius).

NORTHERN WILLOW WARBLER.

Phyllopneuste borealis BLASIUS, Naumannia (1858), 313.
Phylloscopus borealis SEEBOHM, Cat. Birds Brit. Mus. (1881), 5, 40; WHITEHEAD, Ibis (1899), 210 (migration).
Acanthopneuste borealis OATES, Fauna Brit. Ind. Bds. (1889), 1, 412; SHARPE, Hand-List (1903), 4, 216; OATES and REID, Cat. Birds' Eggs (1905), 4, 227; MCGREGOR and WORCESTER, Hand-List (1906), 90.

Balabac (*Everett*); Bantayan (*McGregor*); Basilan (*McGregor*); Bohol (*McGregor*); Calamianes (*Bourns & Worcester, McGregor*); Calayan (*McGregor*); Caluya (*Porter*); Cebu (*McGregor*); Cuyo (*McGregor*); Fuga (*McGregor*); Guimaras (*Bourns & Worcester*); Leyte (*Everett*); Lubang (*McGregor*); Luzon (*Everett, Whitehead, McGregor, Bartsch*); Maestre de Campo (*McGregor & Worcester*); Masbate (*Steere Exp.*); Marinduque (*Steere Exp.*); Mindanao (*Everett, Steere Exp., Celestino*); Mindoro (*Bourns & Worcester, Whitehead, McGregor*); Negros (*Whitehead*); Palawan (*Whitehead, Platen, Steere Exp., Bourns & Worcester*); Panay (*Steere Exp.*); Polillo (*McGregor*); Romblon (*Bourns & Worcester*); Samar (*Bourns & Worcester*); Sibuyan (*Bourns & Worcester*); Siquijor (*Celestino*); Tablas (*Bourns & Worcester*); Ticao (*McGregor*); Verde (*McGregor*). Northern Europe, northern Asia, Alaska, Commander Islands; in winter to China, Formosa, Indo-Chinese provinces, Malay Peninsula, and Borneo.

"*Coloration.*—Upper plumage olive-green, lighter on the rump; wings brown, the outer webs edged with olive-green; wing-coverts brown on the inner and olive-green on the outer webs; the median and greater coverts with yellowish white tips forming two bars; tail brown, the outer webs edged with olive-green; a broad and well-defined eye-streak, reaching to the nape, yellowish white; lores brown; ear-coverts olive mingled with yellowish; under plumage white, suffused with yellow; under wing-coverts and axillars pale yellow.

"As the summer goes on the wing-bars get worn away and the upper one is sometimes absent. The lower plumage gets whiter and the upper plumage duller. After the autumn molt the wing-bars are very conspicuous and the under parts become suffused with deeper yellow.

"Upper mandible dark brown, the edges and tip yellow; gape and basal half of the lower mandible orange-yellow, terminal half dusky; mouth bright orange-yellow; iris dark brown; legs flesh-color tinged with yellow; claws yellowish horn-color. Length, 122; tail, 51; wing, 68.5; tarsus, 20; bill from gape, 17; the second primary is intermediate in length between the fifth and sixth, and is sometimes equal to the sixth; the first primary is very small, measuring from 7.6 to 11.4 in length." (*Oates.*)

The arctic willow warbler is the commonest species of the genus and is found in the Philippines during the winter months. Most of the specimens taken at this time have the under parts but faintly suffused with yellow and in this plumage the wing-bar is indicated by light spots on the outer webs of some of the greater coverts. This plainly colored species is usually seen flitting among the branches of forest trees and at such heights that it can not be distinguished from other species of similar habits.

569. **ACANTHOPNEUSTE XANTHODRYAS** (Swinhoe).

YELLOW WILLOW WARBLER.

Phylloscopus xanthodryas SWINHOE, Proc. Zool. Soc. (1863), 296; SEEBOHM, Cat. Birds Brit. Mus. (1881), 5, 42.

Acanthopneuste xanthodryas SHARPE, Hand-List (1903), 4, 217; MCGREGOR and WORCESTER, Hand-List (1906). 90.

Apo (*Celestino*); Basilan (*McGregor*); Cagayancillo (*McGregor*); Cebu (*McGregor*); Luzon (*Celestino*); Mindanao (*Celestino*); Palawan (*Everett*). Mongolia, Japan, Kamtchatka, and the Kurile Islands; in winter to southern China and Borneo.

"*Spring plumage.*—General color of the upper parts olive, slightly yellower on the rump; eye-stripe well defined, narrow, yellowish white, extending to the nape; lores and the feathers behind the eye to the nape dark olive; wing-coverts olive, the median wing-coverts with narrow, and the greater wing-coverts with broad yellowish white tips, forming an obscure upper wing-bar and a conspicuous lower wing-bar; quills brown, narrowly tipped with grayish white, the outside web edged with green and emarginated as in the preceding species; tail-feathers brown, the outside web margined with green, and the inside web with a narrow well defined grayish white margin; general color of the under parts greenish yellow, grayer on the breast and flanks; axillars, under wing-coverts, and thighs pale yellow; inner margin of quills grayish white.

Bill acrocephaline; upper mandible dark brown, under mandible pale; legs, feet, and claws brown; third and fourth primaries longest; second primary usually intermediate in length between the sixth and fifth, sometimes slightly shorter than the sixth; bastard [first] primary measuring 12.7 to 15.2 mm. Length of wing, male, 72.1 to 68.5; female, 68.5 to 66; tail, male, 53.3 to 49.5; female, 49.5 to 45.7; culmen, 12.9 to 13.9; tarsus, 20.3.

"The changes of plumage in this species are similar to those of the preceding species, but at all seasons of the year the general color of the under parts is much paler in color in *P. borealis* (Blasius). The smaller size and smaller first primary of the latter species serve, however, to distinguish even birds of the year from the present species, though they approach each other very closely." (*Swinhoe.*)

The yellow willow warbler is undoubtedly much rarer in the Philippines than the next preceding species, but upon a careful examination of available material I find it necessary to refer to this species a number of specimens which were previously recorded as *A. borealis.* These changes will be found in the list of localities under each species.

570. ACANTHOPNEUSTE LUGUBRIS (Blyth).

MOURNING WILLOW WARBLER.

Phyllopneuste lugubris BLYTH, Ann. & Mag. Nat. Hist. (1843), 12, 98.
Phylloscopus lugubris SEEBOHM, Cat. Birds Brit. Mus. (1881), 5, 48.
Acanthopneuste lugubris SHARPE, Hand-List (1903), 4, 217; McGREGOR and WORCESTER, Hand-List (1906), 90.

Basilan (*Steere Exp.*); Mindanao (*Steere*); Samar (*Steere Exp.*). Western China to Chuan-che, eastern Himalayas; in winter to eastern Bengal and Burmese provinces.

"*Coloration.*—Very similar to *A. magnirostris,* but rather darker and smaller, and differing also in the proportions of the primaries. Upper mandible dark brown, lower one yellowish, somewhat dusky on the terminal half; iris brown; mouth yellow; legs brown; claws horn-color. Length, 127; tail, 53; wing, 66; tarsus, 19; bill from gape, 15.7; the second primary is intermediate in length between the ninth and tenth, and sometimes equals the tenth; the first primary is very long, being sometimes 20.3 mm. in length." (*Oates.*)

I have not seen a full description of this species; it is usually compared with *A. magnirostris,* but its very long first primary would seem to be a character sufficient to prevent its being mistaken for either of the other species found in the Philippine Islands.

Genus HORORNIS Hodgson, 1845.

Bill short and stout with a small notch near the tip; rictal bristles few and well developed, a few short bristles in front of them; some feathers of forehead and chin with long bristle-like shafts; wing moderate to short, somewhat pointed, or else rounded, either shorter or longer than tail; first primary well developed but much (one-third to one-half) shorter than second, the latter considerably shorter than third; tail strongly rounded; tarsus and feet strong, hind toe and claw heavy; bill from nostril, less than one-half the tarsus, and equal to the hind toe without claw. Colors earthy brown. buff, and white; spots and bars entirely wanting.

Species.

*a*¹. Larger, wing more than 70 mm	canturians (p. 587)
*a*². Smaller, wing less than 65 mm.	
*b*¹. Fourth and fifth primaries nearly equal and longest; wing longer and about equal to tail	minutus (p. 587)
*b*². Fifth and sixth primaries nearly equal and longest; wing shorter and much shorter than tail	seebohmi (p. 588)

571. HORORNIS CANTURIANS (Swinhoe).

CHINESE BUSH WARBLER.

Arundinax canturians SWINHOE, Ibis (1860), 52.
Cettia canturiens SEEBOHM, Cat. Birds Brit. Mus. (1881), 5, 141; WHITEHEAD, Ibis (1899), 211 (winter).
Horornis canturians SHARPE, Hand-List (1903), 4, 236; OATES and REID, Cat. Birds' Eggs (1905), 4, 238.
Horornis canturiens MCGREGOR and WORCESTER, Hand-List (1906), 90.

Apo (*Celestino*); Calayan (*McGregor*); Luzon (*Whitehead, McGregor*). Southern Ussuri Land to Lake Chanka, Formosa; in winter to Cachar and southern China.

Adult.—Above nearly uniform wood-brown; lighter on rump and tail-coverts; a dusky spot before and behind eye; eyelids white; a whitish line from bill over eye to nape; cheeks and ear-coverts buffy brown; under parts white, washed with buff on sides, flanks, crissum, and across fore breast; thighs slate-gray; wings brown, the feathers edged with russet; tail brown; axillars, wing-lining, edge of wing, and inner edges of quills white. Iris brown; bill dark brown above and light below; legs light horn. A male from Calayan measures: Length, 170; wing, 77; tail, 75; culmen from base, 16; bill from nostril, 9; tarsus, 27.

572. HORORNIS MINUTUS (Swinhoe).

LITTLE BUSH WARBLER.

Arundinax minutus SWINHOE, Ibis (1860), 52.
Cettia minuta SEEBOHM, Cat. Birds Brit. Mus. (1881), 5, 141.
Horornis minuta SHARPE, Hand-List (1903), 4, 236; MCGREGOR, Bull. Phil. Mus. (1904), 4, 30; MCGREGOR and WORCESTER, Hand-List (1906), 91.

Calayan (*McGregor*). Hainan, Askold Island, southern China.

Adult.—This species differs from *H. canturians* in being much smaller, and the tail-feathers appear to be less pointed. Length, about 145. A male from Calayan measures: Wing, 62; tail, 61; culmen from base, 14;

bill from nostril, 9; tarsus, 22. A female, wing, 62; tail, 60; culmen from base, 13; bill from nostril, 8; tarsus, 22. Exposed portion of first primary little more than one-half of second; fourth and fifth equal and longest.

In the Philippine Islands the little bush warbler is known only as a winter visitant to Calayan Island.

573. HORORNIS SEEBOHMI (Grant).

PHILIPPINE BUSH WARBLER.

Cettia seebohmi GRANT, Ibis (1894), 507; WHITEHEAD, Ibis (1899), 211 (habits, note).

Horornis seebohmi SHARPE, Hand-List (1903), 4, 236, MCGREGOR and WORCESTER, Hand-List (1906), 90.

Luzon (*Whitehead, McGregor*).

Adult.—Above dusky wood-brown, slightly olivaceous on the back and more russet-brown on the rump, tail-coverts, and margins of the rectrices; wings brown, the quills edged with russet; the first three primaries, however, fringed with much lighter brown; wing-coverts olivaceous; eyelids and eye-stripe whitish or pale buff; a dusky spot before and behind eye; under parts whitish; sides of neck and breast washed with olivaceous; flanks and crissum yellowish buff; thighs brown. Iris light brown; upper mandible dusky, lower mandible, legs, and nails flesh-color. Length, about 140. Male, wing, 55; tail, 63; culmen from base, 15; bill from nostril, 9; tarsus, 24. Female, wing, 52; tail, 60; culmen from base, 14; bill from nostril, 8; tarsus, 23.

Although this species resembles *H. minutus* both in size and color, it might be placed in another genus. The tail is decidedly longer than the wing, the latter rounded and weak; the first primary is equal to two-thirds of second and one-half of third; the fifth and sixth are nearly equal and longest. The plumage is somewhat decomposed and is less compact than in *H. minutus*.

Genus PHYLLERGATES Sharpe, 1883.

In size and superficial appearance *Phyllergates* resembles *Orthotomus,* but the two genera are really very distinct. In *Phyllergates* the bill is much wider and more depressed at the base, and blunter at the tip; the rictal bristles are slightly longer; the wing is longer; the tarsus and feet are more slender; the rectrices are much wider, nearly uniform in length, except the short outermost pair, and but ten in number.

Species.

a^1. Chin and throat white .... **philippinus** (p. 589)
a^2. Chin and throat cinnamon .... **heterolæmus** (p. 589)

574. PHYLLERGATES PHILIPPINUS Hartert.

LUZON TAILOR WARBLER.

Phyllergates cinereicollis (not of Sharpe) GRANT, Ibis (1894), 510; WHITEHEAD, Ibis (1899), 221 (habits).

Phyllergates philippinus HARTERT, Novit. Zool. (1897), 4, 517; SHARPE, Hand-List (1903), 4, 237; MCGREGOR and WORCESTER, Hand-List (1906), 91.

Luzon (*Whitehead*, *McGregor*).

Adult.—Forehead and crown cadmium-yellow; occiput and neck slate-gray; a line of lemon-yellow over eye; remainder of upper parts, including edges of the wing-feathers and rectrices, olive-green; (rump lemon-yellow in the male); inner webs of primaries edged with white; lores and band behind eye dusky gray; ear-coverts, cheeks, chin, throat, and fore breast silky white; remainder of under parts, including edge of wing, axillars, and wing-lining, bright lemon-yellow. Bill dusky brown; base of lower mandible lighter; legs pale yellow; nails light brown. Length, about 115. Male, wing, 44; tail, 42; culmen from base, 16; bill from nostril, 9; tarsus, 18. Female, wing, 42; tail, 37; culmen from base, 15; bill from nostril, 10; tarsus, 18.

The Luzon tailor warbler is abundant in the Province of Benguet; its habits are similar to those of the lowland tailorbirds which it seems to replace in the mountains.

575. PHYLLERGATES HETEROLÆMUS Mearns.

MINDANAO TAILOR WARBLER.

Phyllergates heterolæmus MEARNS, Proc. Biol. Soc. Wash. (1905), 18, 86; MCGREGOR and WORCESTER, Hand-List, (1906), 91.

Mindanao (*Mearns*).

Adult (*sex?*).—"Whole top and sides of head cinnamon-rufous; chin, throat, and sides of neck cinnamon; upper parts olive-green, yellower on upper tail-coverts; upper wing-coverts and wing-quills brownish black, edged with olive-green on outer webs; tail-feathers drab, edged with olive-green; breast and belly canary-yellow; thighs and crissum olive-yellow; axillars and under wing-coverts yellow; quills edged with white on inner webs. Iris brown; bill with maxilla brown; mandible yellow, tipped with red; feet pale yellowish brown. Length, 121; alar expanse, 150; wing, 50; tail, 47; culmen, 14; tarsus, 21; middle toe with claw, 13.5." (*Mearns.*)

Family ARTAMIDÆ.

Bill stout, conical, and pointed; culmen and cutting edge gently curved; nostril about half way between base and tip of upper mandible; wings very long and pointed; tarsus short, its anterior face with about five plates; powder-downs present.

Genus ARTAMUS Vieillot, 1816.

Mandible with a slight notch near tip; rictal bristles much less than bill from nostril; first primary very small and slender, not longer than culmen from base; second primary longest, the wings when folded reaching beyond the middle of tail; tail short and square, the rectrices broad and square; plumage compact. Colors white and gray.

576. ARTAMUS LEUCORYNCHUS (Linnæus).

WHITE-BELLIED SWALLOW SHRIKE.

Lanius leucorynchus LINNÆUS, Mantissa (1771), 524.

Artamus leucogaster SHARPE, Cat. Birds Brit. Mus. (1890), **13**, 3; Hand-List (1903), **4**, 260; WHITEHEAD, Ibis (1899), 240 (habits); OATES and REID, Cat. Birds' Eggs (1905), **4**, 257.

Artamus leucorynchus McGREGOR, Bur. Govt. Laboratories, Manila (1905), **34**, 22, pls. 16 to 18 (nesting habits).

Artamus leucorhynchus McGREGOR and WORCESTER, Hand-List (1906), 91.

Git-git, Ticao, Lubang, and Manila; *it-it*, Bohol.

Bantayan (*McGregor*); Banton (*Celestino*); Basilan (*Everett, Steere Exp., Bourns & Worcester, McGregor*); Bohol (*Everett, McGregor*); Bongao (*Everett*); Buluan (*Mearns*); Calamianes (*Bourns & Worcester, McGregor*); Caluya (*Porter*); Catanduanes (*Whitehead*); Cebu (*Murray, Everett, Steere Exp., Bourns & Worcester, McGregor*); Cuyo (*McGregor*); Guimaras (*Meyer, Steere Exp., Bourns & Worcester*); Leyte (*Everett, Bartsch*); Lubang (*McGregor*); Luzon (*Meyer, Everett, Steere Exp., Bourns & Worcester, Whitehead, McGregor, Bartsch*); Marinduque (*Steere Exp.*); Masbate (*Bourns & Worcester, McGregor*); Mindanao (*Steere, Everett, Koch & Schadenberg, Steere Exp., Bourns & Worcester, Celestino*); Mindoro (*Steere Exp., Schmacker, Bourns & Worcester, McGregor*); Negros (*Meyer, Everett, Steere Exp., Bourns & Worcester, Keay*); Palawan (*Platen, Bourns & Worcester, White*); Panay (*Steere Exp., Bourns & Worcester*); Papahag (*Bartsch*); Polillo (*McGregor*); Romblon (*Bourns & Worcester, McGregor*); Samar (*Whitehead*); Semirara (*Worcester*); Sibay (*McGregor & Worcester*); Sibuyan (*Bourns & Worcester, McGregor*); Siquijor (*Steere Exp., Bourns & Worcester, Celestino*); Sulu (*Burbidge, Guillemard, Bourns & Worcester, Bartsch*); Tablas (*Bourns & Worcester*); Tawi Tawi (*Bourns & Worcester*); Ticao (*McGregor*); Verde (*McGregor*). Australia, Papuan and Andaman Islands, Malay Archipelago.

Adult (*sexes alike*).—Upper tail-coverts pure white; remainder of upper parts with wings and tail slate-gray; mantle and back decidedly browner; primaries and rectrices blacker; loral and nasal plumes black; sides of head and neck slate-gray; chin, throat, and fore part of chest blackish slate; remainder of under parts, axillars, and wing-lining pure white. Iris dark; bill light blue, its tip black; legs and nails black. Length, 190 to 200. A male from Siquijor measures: Wing, 136; tail, 67; culmen from base, 21; bill from nostril, 15; tarsus, 16.5. A female from Luzon, wing, 137; tail, 66; culmen from base, 20; bill from nostril, 14; tarsus, 15.

Young.—Four large nestlings taken in Benguet, Luzon, April 19, 1903, resemble the adult in having the breast, abdomen, and crissum white.

but the throat is light gray; chin, cheeks, and jaw dark smoky gray; upper parts light seal-brown with some ocherous-colored fringes to the feathers of back and inner wing-coverts; upper tail-coverts white; primaries, secondaries, and rectrices slate-blue with wide edges of gray or white. Iris brown; bill brown, yellowish along cutting edge; legs and feet blackish; nails black.

The *nestling down* is light buff.

"The swallow shrike is one of the commonest Philippine birds and it seems probable that this species occurs on every island of the group. It hawks after insects during the day, and may sometimes be seen hunting in great flocks just at sundown. Hundreds often roost together on the leaves of coconut trees. Called 'git-git' and 'ala-git-git' by the natives. We found it nesting in the coconut trees as a rule, but a nest in Negros was placed on the broken top of the trunk of a cotton-tree. The nest is composed of small grass-stems, twigs, and similar materials loosely woven together, and is lined with fine grass and with fibers from the bark of the cabo negro palm. The cavity of the nest is broad and shallow, measuring 75 to 100 mm. in width and 25 to 40 mm. in depth. The exterior dimensions vary greatly in different nests. Three or four eggs are deposited. Their ground-color is pale creamy white, usually very heavily marked with spots and blotches of very pale lilac and light chocolate-brown. These markings are usually more numerous at the larger end where, in rare cases, they almost entirely conceal the ground-color, while in others they are replaced by fine dots and small spots. The eggs are remarkably uniform in shape. They vary from 22.8 to 24.8 mm. in length and from 17.2 to 18 mm. in breadth." (*Bourns and Worcester MS.*)

This attractive species was found breeding in abundance along the Baco River, Mindoro, in April, 1904. The nests were usually placed among the upturned roots of fallen trees which had become stranded in the river.

Family **LANIIDÆ.**

Bill strong, either compressed or at least as high as broad at nostril, never depressed; upper mandible with a notch, or with a notch and a tooth near tip; nostrils partly hidden by antrorse frontal plumes, the shafts of which are produced; wing moderate in length, flat, and somewhat rounded; first primary one-half of third or less, the second falling between the first and third; rectrices twelve, either long, or else moderate in length; front of tarsus covered with distinct plates; hind toe with claw less than culmen from base.

Subfamilies.

a^1. Bill strongly compressed except near base and with a strong tooth and a deep notch near its tip; shafts of chin-feathers not produced...... **Laniinæ** (p. 592)

a^2. Bill as high as broad, a slight notch near its tip; shafts of chin-feathers produced .... **Pachycephalinæ** (p. 599)

Subfamily LANIINÆ.

Bill strongly compressed, hooked, and with a strong tooth and deep notch on each side of upper mandible; inner webs of primaries slightly emarginate; rectrices graduated, usually as long as, or longer than, wing.

Genera.

a^1. Mantle barred .... **Enneoctonus** (p. 592)
a^2. Mantle not barred.
  b^1. Forehead black; crown dark slate or black........ **Cephalophoneus** (p. 593)
  b^2. Forehead gray or white in adults, more or less dull brown, earthy brown, or cinnamon-rufous in young birds, but never black; crown gray or brown .... **Otomela** (p. 596)

Genus ENNEOCTONUS Boie, 1826.

The only species of *Enneoctonus* known to occur in the Philippine Islands may be recognized by its barred mantle.

577. ENNEOCTONUS TIGRINUS (Drapiez).

TIGER SHRIKE.

Lanius tigrinus DRAPIEZ, Dict. Class. Hist. Nat. (1828), **13**, 523; GADOW, Cat. Birds Brit. Mus. (1883), **8**, 289; BLASIUS, Jour. für Orn. (1890), 139.

Enneoctonus tigrinus SHARPE, Hand-List (1903), **4**, 286; MCGREGOR and WORCESTER, Hand-List (1906), 91.

Sulu (*Platen*). Korea, China, Malay Peninsula, Java, Sumatra, and Borneo.

"*Adult male* (*summer plumage*).—Crown of head, hind neck, and upper part of the mantle clear bluish gray; mantle, scapulars, the whole back and the upper tail-coverts reddish brown, each feather with several transverse black bars; lesser wing-coverts like the back, the rest and the secondary quills chestnut-brown with submarginal black lines; primary quills uniform brown, with no white at the base whatever; tail uniform chestnut-brown, with faint subterminal bars and whitish tips to the outer rectrices; a frontal band, the loral and ocular region, and the ear-coverts deep black; all the under parts white, washed with cream-color, especially on the throat, breast, and edge of wings; some of the under wing-coverts with submarginal blackish brown bars. 'Bill bluish black; feet pale leaden, with a fleshy tinge; iris blackish brown.' (*Swinhoe.*)

"*Winter plumage.*—The gray of the head and neck is washed with brownish; the frontal band and ear-coverts are brownish black, so that the head has lost its beautiful appearance; cheeks, sides of breast, and flanks with a few subterminal brown vermiculations; bill and feet horny brown. Length, 168; culmen, 19; wing, 81; tail, 76; tarsus, 22.8.

"*Adult female.*—Very similar to the adult male in winter plumage, but generally with 'a large creamy patch on the lores, and a white half-eyebrow in rear of the eye-line' (*Swinhoe*); bill bluish black. The measurements are the same as in the male.

"*Observation.*—Consul Swinhoe observes 'that the sexes are alike, the males being more richly colored.' This, however, holds good only with old females in breeding plumage, since in winter (as proved by all the specimens from Malacca and Borneo) the female closely resembles the young and immature birds, the black frontal band and the gray of the head and neck being replaced by the reddish brown black-barred coloration of the back, while the region above the ear-coverts and above the eye is creamy instead of reddish brown.

"*Immature bird.*—General color of the whole upper surface of the body reddish brown, which color is more fulvous and grayish on the head and neck, passing into chestnut-brown on the rump and upper tail-coverts; each feather has several very distinct black or dark-brown cross-bars, and is mottled with small creamy or almost white spots; again, the shafts of the feathers being white, the upper parts of the body, especially the mantle and neck, exhibit a rather densely spotted aspect, thus differing from the adult female in summer plumage; no frontal band; the forehead, the region round the eye, and ear-coverts whitish mottled with brownish; throat, middle of abdomen, under tail- and under wing-coverts uniform cream-color; all the rest of the under parts and sides of the neck densely marked with blackish brown vermiculations. Bill pale horny brown; feet more bluish." (*Gadow.*)

"The tiger shrike is included in this list solely on the authority of Blasius. As it occurs in Borneo its presence in the Sulu group would not be suprising, but we failed to find it." (*Bourns and Worcester MS.*)

Genus CEPHALOPHONEUS Fitzinger, 1863.

Forehead black; crown either black or dark slate-gray; without a white eyebrow.*

Species.

a^1. Tail much shorter, less than 100 mm.; crown, neck, and back nearly uniform slaty gray .... **validirostris** (p. 594)
a^2. Tail much longer, more than 120 mm.; crown and neck black, back light gray.
  b^1. Scapulars, back, and rump darker; abdomen white........ **nasutus** (p. 594)
  b^2. Scapulars, back, and rump lighter; abdomen pinkish vinaceous. **suluensis** (p. 595)

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* I follow Sharpe in alloting *Lanius validirostris* and *L. nasutus* to *Cephalophoneus*. The type of this genus is said to be *Lanius bucephalus*, a species resembling *Lanius validirostris* in length of tail and turgidity of bill. These two species appear to be congeneric. In *L. nasutus*, however, the tail is much longer; the rectrices are more strongly graduated and relatively narrower. Possibly another genus should be recognized for *nasutus* and *suluensis*.

578. CEPHALOPHONEUS VALIDIROSTRIS (Grant).

STRONG-BILLED SHRIKE.

Lanius validirostris GRANT, Bull. Brit. Orn. Club (1894), 3, 49; Ibis (1894), 512; WHITEHEAD, Ibis (1899), 226 (habits).

Cephalophoneus validirostris SHARPE, Hand-List (1903), 4, 286; MCGREGOR and WORCESTER, Hand-List (1906), 92.

Luzon (*Whitehead, Worcester, McGregor*); Mindoro (*Whitehead*).

Adult male.—Upper parts slate-gray, pale gray on forehead and over eye; frontal band, lores, ear-coverts, and line above and below eye black, forming a broad band to side of neck; under parts white; flanks cinnamon-buff, crissum faintly washed with buff; thighs black; wings blackish; inner secondaries margined with white on outer webs; rectrices blackish, the two or three outer pairs narrowly tipped with white. Bill and nails black; legs blackish brown; iris dark brown. Length, about 210; wing, 87; tail, 97; culmen from base, 17; bill from nostril, 12; tarsus, 24.

"*Adult female.*—Differs slightly in having the black on the sides of the face paler and absent on the forehead, which is whitish gray; the whitish gray margins to the superciliaries are more marked; the margins to the secondaries are rufous-buff, and the thighs are gray. Length, 200; wing, 86; tail, 89; tarsus, 25; culmen, 23." (*Grant.*)

Young.—Young birds, in first plumage, have the upper part smoky gray; frontal band, lores, and band through eye black; chin, throat, and middle of abdomen white; thighs black; remainder of under parts tawny-buff; breast and malar region speckled with smoky brown, but no bars on the under parts; wings and tail blackish brown; greater secondary-coverts, inner secondaries and nearly all the remiges edged with tawny-buff.

The strong-billed shrike is fairly abundant in Benguet Province, Luzon.

579. CEPHALOPHONEUS NASUTUS (Scopoli).

LARGE-NOSED SHRIKE.

Lanius nasutus SCOPOLI, Del Flor. et Faun. Insubr. (1786), 2, 85; OATES, Bds. Brit. Burmah (1883), 1, 248; WHITEHEAD, Ibis (1899), 226 (habits).

Lanius cephalomelas GADOW, Cat. Birds Brit. Mus. (1883), 8, 269.

Cephalophoneus nasutus SHARPE, Hand-List (1903), 4, 287; OATES and REID, Cat. Birds' Eggs (1905), 4, 289; MCGREGOR and WORCESTER Hand-List (1906), 92.

Ta-rat San Diego, Manila.

Bohol (*Steere Exp., McGregor*); Calamianes (*Bourns & Worcester, McGregor*); Cebu (*Meyer, Everett, Bourns & Worcester, McGregor*); Guimaras (*Steere Exp.*); Leyte (*Everett*); Luzon (*Everett, Bourns & Worcester, Whitehead, McGregor, Bartsch*); Masbate (*Bourns & Worcester*); Mindanao (*Everett, Koch & Schadenberg, Bourns & Worcester*); Mindoro (*Everett*); Negros (*Steere Exp., Bourns & Worcester, Keay*); Panay (*Sonnerat, Steere Exp., Bourns & Worcester*); Samar (*Bourns & Worcester*); Siquijor (*Steere Exp., Bourns & Worcester, Celestino*). Northern Borneo.

Adult.—Entire top and sides of head, hind neck, and sides of neck black; mantle light gray shading into ocherous buff on scapulars, back, rump and tail-coverts; under parts white; sides and flanks ocherous buff; crissum light buff; thighs white; wings and tail black; inner webs of wing-quills edged with white; fifth to eighth primaries with a small white spot near base of outer webs; inner secondaries more or less edged and tipped with pale buff or white; edge of wing, of first alula quill, and of first and second primaries white; rectrices narrowly tipped with pale buff or white, two outermost pairs edged with pale buff or white; all the rectrices fringed with pale buff at base. Iris brown; bill, legs, and nails black. Length, 240 to 245. A male from Siquijor measures: Wing, 88; tail, 125; culmen from base, 18; bill from nostril, 12; tarsus, 26. A female, wing, 88; tail, 124; culmen from base, 18; bill from nostril, 12; tarsus, 26.

"Quite common in some localities, especially in Siquijor, but less abundant than *O. lucionensis.* Habits the same, and frequents precisely the same localities. Three males from Mindanao average: Length, 240; wing, 88; tail, 120; culmen, 21; tarsus, 26; middle toe with claw, 23. Two females from Culion, length, 228; wing, 87; tail, 113; culmen, 20; tarsus, 25; middle toe with claw, 23. Iris dark brown to black." (*Bourns and Worcester MS.*)

580. CEPHALOPHONEUS SULUENSIS Mearns.

SULU SHRIKE.

Lanius cephalomelas GUILLEMARD, Proc. Zool. Soc. (1885), 257.
Lanius nasutus WORCESTER and BOURNS, Proc. U. S. Nat. Mus. (1898), **20**, 561, no. 391 (part).
Cephalophoneus nasutus SHARPE, Hand-List (1903), **4**, 287 (part).
Cephalophoneus suluensis MEARNS, Proc. Biol. Soc. Wash. (1905), **18**, 86; MCGREGOR and WORCESTER, Hand-List (1906), 92.

Sulu (*Guillemard, Bourns & Worcester, Mearns.*)

Adult male.—"Whole top [of head] and sides of neck, and hind neck black; mantle gray (No. 10 Ridgway), fading to pale cream-buff on back; scapulars pale cream-buff, broadly bordered with white; rump and upper tail-coverts pinkish buff; primaries black with an exposed spot of white, formed by white bands crossing the external webs of third to seventh primaries opposite the end of the alula; secondaries black, tipped and edged externally with white; tail black, with outer feathers gray at base, tipped with grayish white; chin, throat, breast, thighs, axillars, and lining of wings pure white; side buff; abdomen pinkish vinaceous; under tail-coverts buffy white. Length (of skin), 240; wing, 95; tail, 135; culmen, 17; depth of bill at angle of gonys, 8.7; tarsus, 28.

"In size and color pattern this species closely resembles *Lanius nasutus* Scopoli from which it may be distinguished by the pale color of the scapulars, back, and rump, as well as by the pinkish vinaceous color of the abdomen." (*Mearns.*)

The long-tailed shrikes collected in Sulu by Bourns and Worcester and by Guillemard were probably of this species. I have not seen a specimen from Sulu.

Genus OTOMELA Bonaparte, 1853.

The Philippine species of *Otomela* may be recognized by the nearly uniformly colored upper parts, narow, white or pale buff, superciliary stripe, and short tail; wing and tail about equal in length.*

Species.

a^1. Forehead pearl-gray, shading gradually into earthy brown on the crown and back .... **lucionensis** (p. 597)
a^2. Forehead not gray, the upper parts reddish brown.
  b^1. Upper parts duller brown .... **cristata** (p. 598)
  b^2. Upper parts brighter, reddish or fox-brown .... **superciliosa** (p. 598)

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* Philippine specimens of this genus have usually been referred to *Lanius* (*Otomela*) *lucionensis*, but both *O. cristata* and *O. superciliosa* are credited to the Philippines in Sharpe's Hand-List and for this reason they are included here. Having no specimens of undoubted identity I am unable to determine many of the specimens of shrikes in the Bureau of Science collection. Of the last two species mentioned I give the distribution and short descriptions on the authority of Dresser.

The following paragraphs may be of use in distinguishing the three species.

"*L. superciliosus* Latham * * * has the entire upper surface very bright *uniform* rufous, a very broad frontal band, a very broad superciliary stripe, and the throat pure white; the inner webs of the basal parts of the primaries white underneath, which shows through on the upper surface of the quills at their insertion, almost forming a white, yet concealed alar bar; shoulder-edge and under shoulder-coverts pure white.

"*L. cristatus* Linnæus has the head, nape, rump, upper tail-coverts, and tail rufous, but less bright and browner than in *L. superciliosus*. The back is colored with the same tint, but paler or less rufous. The chin and upper part of the throat are white; but the tawny hue of the breast extends higher up than in either *L. superciliosus* or in *L. lucionensis;* and all the throat is usually washed with tawny.

"The white frontal band is narrow and ill-defined; and the white supercilium is much less prominent than in *L. superciliosus*. The quills at their insertions show indications, although slight, of a rudimentary alar bar. The shoulder-edge and under shoulder-coverts are tawny. The female is colored as the male, but has the subocular stripe brown and not black and the sides of the breast and flanks more or less striated and freckled with faint brown marks.

"*L. lucionensis* Linnæus has the forehead and crown delicate pale pearl-gray, no pure white whatever on the forehead. A narrow white supercilium commences above the eye, becoming somewhat broader behind, and shading off into the gray of the head. The occiput, nape, and back are ashy liver-brown. The rump, upper tail-coverts, and tail are washed with rufous, most marked on the upper tail-coverts; the chin and throat pure white, as in *L. superciliosus;* shoulder-edge and under shoulder-coverts pure white; indications of a concealed white alar bar, as in *L. cristatus;* and the female has the sexual distinguishing characters of that species. The almost entire absence of rufous in the plumage of the adult Philippine species suffices to distinguish it at a glance from *L. cristatus* and *L. superciliosus*." Walden, *Trans. Zool. Soc.* (1875), 9, 171,172.

581. OTOMELA LUCIONENSIS (Linnæus).

GRAY-HEADED SHRIKE.

Lanius lucionensis LINNÆUS, Syst. Nat. ed. 12 (1766), 1, 135; WALDEN, Trans. Zool. Soc. (1875), 9, 171, pl. 29, fig. 1; GADOW, Cat. Birds Brit. Mus. (1883), 8, 274; WHITEHEAD, Ibis (1899), 226.

Otomela lucionensis SHARPE, Hand-List (1903), 4, 288; MCGREGOR and WORCESTER, Hand-List (1906), 92.

Ta-ga-pa-ri, Ticao; *ti-cong*, Cagayancillo; *te-ti-bi-as*, Bantayan; *ti-ba-las*, Siquijor; *ta-rat* or *ca-bi-so-te*, Manila.

Agutaya (*McGregor*); Balabac (*Everett*); Bantayan (*McGregor*); Basilan (*Steere Exp., Bourns & Worcester, McGregor*); Bohol (*Everett, McGregor*); Cagayancillo (*McGregor*); Calamianes (*Bourns & Worcester, McGregor*); Calayan (*McGregor*); Caluya (*Porter*); Catanduanes (*Whitehead*); Cebu (*Everett, Steere Exp., McGregor*); Cuyo (*McGregor*); Fuga (*McGregor*); Guimaras (*Steere Exp., Bourns & Worcester*); Leyte (*Everett, Bartsch*); Lubang (*McGregor*); Luzon (*Möllendorff, Meyer, Everett, Bourns & Worcester, Whitehead, McGregor, Bartsch*); Maestre de Campo (*McGregor & Worcester*); Masbate (*Steere Exp., Bourns & Worcester, McGregor*); Mindanao (*Everett, Steere Exp., Platen, Bourns & Worcester, Goodfellow, Celestino*); Mindoro (*Schmacker, Bourns & Worcester, McGregor*); Negros (*Steere Exp., Bourns & Worcester, Whitehead*); Palawan (*Whitehead, Everett, Platen, Bourns & Worcester, White*); Panaon (*Everett*); Panay (*Steere Exp., Bourns & Worcester*); Romblon (*Bourns & Worcester*); Samar (*Steere Exp.*); Sibay (*McGregor & Worcester*); Sibuyan (*Bourns & Worcester*); Siquijor (*Celestino, Bourns & Worcester*); Sulu (*Bourns & Worcester*); Tablas (*Bourns & Worcester*); Tawi Tawi (*Bourns & Worcester*); Ticao (*McGregor*); Verde (*McGregor*). Mongolia, northern China, Korea, Formosa, Andaman and Nicobar Islands, Malay Archipelago; southern India in winter.

Adult male (*Bohol, April*).—Lores, a narrow frontal line, and a broad band through eye to side of neck black; forehead delicate pearl-gray, shading gradually into earthy brown on the back and becoming more reddish brown on the lower back and rump; chin, throat, jaw, and middle of abdomen white; thighs pale gray; remaining under parts buff; wing-feathers blackish; primaries whitish at their bases; axillars and inner edges of wing-quills white; rectrices earthy brown, narrowly tipped with whitish and obsoletely barred. Bill, legs, and nails black. Wing, 88; tail, 87; culmen from base, 16; bill from nostril, 11; tarsus, 23.

Most of the specimens taken in the Philippines, autumn and winter, have the under parts whitish with varying amounts of dusky vermiculations. This plumage appears to be characteristic of both young and winter specimens.

Young birds differ from the adults in the color of the upper parts, which are "brownish rufous, brighter on the upper tail-coverts; no gray on the head; loral region and a superciliary streak dingy white or cream-color; head, hind neck, mantle, and upper tail-coverts showing faint dark vermiculations; wing-coverts and secondary quills brown, broadly edged with rufous, each feather with a dark brown submarginal line; ear-coverts and a small spot in front of the eye dark brown; chin, throat, middle of abdomen, and the under wing-coverts, axillars, and edge of wing pale creamy white; all the rest of the under parts more strongly washed with creamy or even with rufous, and marked with numerous dark brown cross-vermiculations; bill brown, lighter at base." (*Gadow.*)

"One of the commonest of Philippine birds. Doubtless occurs on every island of the group. Found in open fields, where it perches on stones, weeds, bushes, etc. It is a very noisy, quarrelsome bird, and a vicious fighter when snared or wounded. Five males average: Length, 186; wing, 85; tail, 84; culmen, 20; tarsus, 23; middle toe with claw, 22. Five females, length, 188; wing, 86; tail, 82.5; culmen, 20; tarsus, 23; middle toe with claw, 21." (*Bourns and Worcester MS.*)

582. OTOMELA CRISTATA (Linnæus).

BROWN SHRIKE.

Lanius cristatus Linnæus, Syst. Nat. ed. 10 (1758), 1, 93; Gadow, Cat. Birds Brit. Mus. (1883), 8, 271; Dresser, Man. Palæartic Bds. (1902), 1, 240.

Otomela cristata Sharpe, Hand-List (1903), 4, 288; Oates and Reid, Cat. Birds' Eggs (1905), 4, 290; McGregor and Worcester, Hand-List (1906), 92.

Asia, from the Yenesei to Kamchatka and Dauria, and from Yarkand to the east coast of China; wintering in India, Ceylon, the Andamans, Burma, the Malay Peninsula, and as far south as Java. (*Dresser.*) Borneo and Philippine Islands in winter. (*Sharpe.*)

"*Male adult* (*Dauria*).—Upper parts reddish brown, more rufous on the crown; wings dark brown margined with rufous, the lesser wing-coverts like the back; no white alar speculum; tail reddish brown, paler at the tip; lores and a patch passing through the eye and extending over the ear-coverts black; forehead, supercilium, cheeks, chin, and throat white; rest of the under parts rufous-buff. Bill pale plumbeous, the upper mandible from the nostril, and the tip of the lower mandible dark horn; legs bluish brown; iris dark brown; eyelids plumbeous. Culmen, 17.7; wing, 89; tail, 91; tarsus, 25.4.

"The *female* has the supercilium creamy white, the under parts isabelline, the flanks rufous-buff, these and the breast faintly vermiculated, and the young have the upper parts distinctly barred and the under parts vermiculated with dark brown." (*Dresser.*)

583. OTOMELA SUPERCILIOSA (Latham).

WHITE-FRONTED SHRIKE.

Lanius superciliosus Latham, Ind. Ornith. (1801), suppl. 20, No. 4; Gadow, Cat. Birds Brit. Mus. (1883), 8, 273; Dresser, Man. Palæarctic Bds. (1902), 1, 241.

Otomela superciliosa Sharpe, Hand-List (1903), 4, 288; Oates and Reid, Cat. Birds' Eggs (1905), 4, 290; McGregor and Worcester, Hand-List (1906), 93.

The Island of Sagahalien, Askold and Japan; wintering in the Malay Peninsula, Philippines, and Java. (*Dresser.*)

"*Male adult* (*Japan*).—Differs from *L. cristatus* in having the upper parts much brighter, usually rich fox-red, the forehead and fore crown and a broad supercilium pure white; wings blackish, externally margined with rufous; tail fox-red tipped with dull white. Culmen, 17.7; wing, 89; tail, 94; tarsus, 21." (*Dresser.*)

Subfamily PACHYCEPHALINÆ.

Bill at nostril as broad as it is high, compressed toward the tip; a well-marked notch near tip of bill; feathers of chin and jaw with their shafts produced and hair-like; rectrices nearly uniform in length; tail decidedly shorter than wing.

Genus HYLOTERPE Cabanis, 1847.

Characters same as those given for the Subfamily.

Species.

a^1. Upper parts olive-green.
  b^1. Breast, abdomen, and crissum lemon-yellow, or at least washed with yellow.
    c^1. Breast and abdomen bright lemon-yellow.
      d^1. Larger; bill longer; back duller olive-green........ **philippinensis** (p. 599)
      d^2. Smaller; bill shorter; back brighter olive-green.......... **apoensis** (p. 600)
    c^2. Breast, sides, and abdomen washed with yellow.
      d^1. Smaller; breast and sides less strongly washed with yellow. **fallax** (p. 601)
      d^2. Larger; breast and sides more strongly washed with yellow. **illex** (p. 601)
  b^2. Breast olivaceous gray; abdomen white; crissum pale yellow. **albiventris** (p. 602)
a^2. Upper parts brown.
  b^1. Smaller; wing, about 80 mm.; tail, 62; upper parts hair-brown, slightly olivaceous .... **whiteheadi** (p. 602)
  b^2. Larger; wing, 84 mm. or more; tail, 66 or more.
    c^1. Larger; upper parts mars-brown.................... **winchelli** (p. 603)
    c^2. Smaller; upper parts dark walnut-brown; auriculars vinaceous cinnamon. **homeyeri** (p. 603)

584. HYLOTERPE PHILIPPINENSIS Walden.

LUZON THICKHEAD.

Hyloterpe philippinensis WALDEN, Ann. & Mag. Nat. Hist. (1872), **10**, 252; Trans. Zool. Soc. (1875), **8**, 179, pl. 31, fig. 2; GRANT and WHITEHEAD, Ibis (1898), 241 (eggs); WHITEHEAD, Ibis (1899), 225 (habits, nest); SHARPE, Hand-List (1903), **4**, 313 (part); MCGREGOR and WORCESTER, Hand-List (1906), 93 (error in locality list).
Pachycephala philippinensis GADOW, Cat. Birds Brit. Mus. (1883), **8**, 221.

Luzon (*Meyer, Whitehead, McGregor*).

Adult.—Top of head and hind neck olive-brown, shading into dull olive-green on back; lighter olive-green on rump, tail-coverts, and edges of wing-feathers and rectrices; lores and ear-coverts drab; chin, throat, and malar region white; chin-feathers with black shafts; throat with obscure drab shaft-lines; sides of fore breast olive-yellow; remainder of under parts bright lemon-yellow. Iris brown; bill black; legs and nails flesh-color. Length, about 150. A male from Bataan Province, Luzon, measures: Wing, 84; tail, 69; culmen from base, 16; bill from nostril, 11; tarsus, 19. A female from the same locality, wing, 81; tail, 66; culmen from base, 16; bill from nostril, 11; tarsus, 20.

585. **HYLOTERPE APOENSIS** Mearns.

MOUNT APO THICKHEAD.

Hyloterpe philippinensis Grant and Whitehead, Ibis (1898), 241, pl. 5, fig. 1 (egg); Sharpe, Hand-List (1903), **4**, 313 (part); Oates and Reid, Cat. Birds' Eggs (1905), **4**, 299 pl. 13, fig. 18.

Hyloterpe apoensis Mearns, Proc. Biol. Soc. Wash. (1905), **18**, 86; McGregor and Worcester, Hand-List (1906), 93; Grant, Ibis (1906), 475 (critical); McGregor, Phil. Jour. Sci. (1907), **2**, sec. A, 329 (Bohol).

Hyloterpe apoensis basilanica Mearns, Proc. U. S. Nat. Mus. (1909), **36**, 442.[*]

Pbc'a-oi-toi, Bagobo of Mount Apo.

Basilan (*Steere Exp., Bourns & Worcester, McGregor, Mearns*); Bohol (*McGregor*); Dinagat (*Everett*); Leyte (*Whitehead*); Mindanao (*Bourns & Worcester, Mearns, Goodfellow, Celestino*); Samar (*Steere Exp., Bourns & Worcester, Whitehead*); Siquijor (*Steere Exp., Bourns & Worcester, Celestino*).

Adult.—Similar to *H. philippinensis,* but the bill decidedly smaller and the back bright olive-green. A male topotype measures: Wing, 82; tail, 68; culmen from base, 14; bill from nostril, 9; tarsus, 18.5. Specimens from Bohol differ in having larger bills. A male measures: Wing, 75; tail, 62; culmen from base, 15; bill from nostril, 10. A male from Siquijor measures: Wing, 84; tail, 69; culmen from base, 17; bill from nostril, 11.

Whitehead found a set of two eggs of the Mount Apo thickhead near Paranas, Samar, in June, 1896. The eggs are thus described: "Shape ovate. Ground-color brownish cream-color, shading into a zone of deeper color round the larger end; the zone is ornamented with spots of pale sienna-brown and larger underlying markings of bluish gray. Measurements 23 mm. by 17 mm.

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[*] "*Adult male.*—Similar to typical *Hyloterpe apoensis*, but paler throughout, with crown brownish instead of grayish; under parts canary-yellow instead of lemon-yellow; slightly smaller. Wing, 78; tail, 67; culmen, 14; bill from nostril, 9.2; tarsus, 17.5. 'Iris brown. Bill black.'

"*Adult female* * * *.—Paler and dingier than the male; under parts pale canary-yellow from throat backward. Wing, 71; tail, 61; tarsus, 17.5.

"*Remarks.*—Specimens in the U. S. National Museum, collected on the Island of Siquijor, Philippine Islands, by F. S. Bourns and D. C. Worcester, are exactly like Basilan specimens taken in February, 1888, and must be included as belonging to this species. Lowland birds from Mindanao Island connect the forms *apoensis* and *basilanica.*" (*Mearns.*)

Specimens from Siquijor, although larger than true *H. apoensis,* seem to be nearly like this species in color.

"Nest cup-shaped, very similar to that constructed by *Iole philippensis,* and composed of similar materials—fine roots and dead leaves. It was situated in the undergrowth of old forest in a small tree about three meters from the ground, and the female bird was obtained." (*Grant and Whitehead.*)

586. **HYLOTERPE FALLAX** McGregor.

CALAYAN THICKHEAD.

Hyloterpe fallax McGregor, Bull. Philippine Mus. (1904), 4, 27; McGregor and Worcester, Hand-List (1906), 93.

Sa-mot ba-sit, Calayan.
Calayan (*McGregor*).

Adult.—Top of head hair-brown washed with olive-green; remainder of upper parts, including exposed edges of wing-feathers and rectrices, dark olive-green; ear-coverts drab; chin and throat white with distinct dusky shaft-lines, bordered posteriorly by a crescentic, dusky band of drab, washed posteriorly with olive; breast, abdomen, and crissum yellow, pale for the greater part, but bright lemon-yellow on crissum; sides of breast and flanks dusky olive-green; feathers of thighs gray, tipped with yellow; edge of wing, under wing-coverts, and axillars white washed with yellow; inner webs of quills edged with white. Bill black; legs plumbeous; nails flesh-color. Measurements of male cotype: Length, 152; wing, 83; tail, 64; culmen from base, 17; bill from nostril, 11; tarsus, 21. *Female* cotype, wing, 79; tail, 67; culmen from base, 17; bill from nostril, 11; tarsus, 21.

Immature.—Sides of face and pectoral band washed with faint reddish brown; edges of wing-quills reddish brown. Bill dark brown, lower mandible lighter.

587. **HYLOTERPE ILLEX** McGregor.

CAMIGUIN THICKHEAD.

Hyloterpe illex McGregor, Phil. Jour. Sci. (1907), 2, sec. A, 348.

Camiguin N. (*McGregor*).

Adult.—Similar to *Hyloterpe fallax,* but slightly larger; breast and flanks more strongly suffused with yellow. Male type, length, 183; wing, 93; tail, 75; culmen from base, 17; bill from nostril, 11; tarsus, 21. Female, wing, 86; tail, 67; culmen from base, 16; bill from nostril, 12; tarsus, 22.

Young.—A young bird taken in June has most of the head and body covered with vinaceous-cinnamon down, darker on the back; under tail-coverts pale yellow; wing-feathers and rectrices blackish brown, edged with olive-green; innermost secondaries and secondary-coverts washed with vinaceous-cinnamon.

588. HYLOTERPE ALBIVENTRIS Grant.

HIGHLAND THICKHEAD.

Hyloterpe albiventris GRANT, Bull. Brit. Orn. Club (June 30, 1894), 3, 49; Ibis (1894), 511; WHITEHEAD, Ibis (1899), 225 (habits); SHARPE, Hand-List (1903), 4, 313; MCGREGOR and WORCESTER, Hand-List (1906), 93.

Hyloterpe mindorensis BOURNS and WORCESTER, Minnesota Acad. Nat. Sci. Occ. Papers (December 8, 1894), 1, 22; MCGREGOR and WORCESTER, Hand-List (1906), 93.

Luzon (*Whitehead, McGregor, Bartsch*); Mindoro (*Whitehead, Bourns & Worcester, McGregor*).

Adult.—Above dull olive-green, brighter on the rump, wings, and tail; sides of head and ear-coverts slightly washed with olive; chin, throat, and chest hair-brown streaked with white and slightly washed with olive; abdomen white faintly washed with yellow; sides and flanks more dusky; crissum pale lemon-yellow; axillars and wing-lining white faintly washed with yellow. Length, about 165. Male, wing, 82; tail, 70; culmen from base, 15; bill from nostril, 10; tarsus, 22. Female, wing, 79; tail, 66; culmen from base, 16; bill from nostril, 9.5; tarsus, 22.

Young.—A very young bird taken in April resembles the young of *H. illex.* Above dark walnut-brown; below vinaceous-cinnamon; three or four outer primaries edged with pale gray; the inner primaries edged with olive-green, some of them washed with reddish brown.

"Very rare in Mindoro. But a single female specimen obtained. It measures 165 in length; wing, 78; tail, 66; culmen, 17.8; tarsus, 21; middle toe with claw. 19." (*Bourns and Worcester MS.*)

589. HYLOTERPE WHITEHEADI Sharpe.

PALAWAN THICKHEAD.

Hyloterpe whiteheadi SHARPE, Ibis (1888), 311; Hand-List (1903), 4, 313; MCGREGOR and WORCESTER, Hand-List (1906), 93.

Hyloterpe plateni BLASIUS, Ornis (1888), 311.

Palawan (*Whitehead, Platen, Bourns & Worcester, Everett, Celestino, White*).

Adult.—Upper parts hair-brown; edges of wing-feathers and of rectrices slightly more ashy brown; auriculars and sides of neck hair-brown; throat white with faint drab-gray streaks; chest drab-gray; remainder of under parts white. Male, wing, 79; tail, 62; culmen from base, 17; bill from nostril, 10; tarsus, 19. Female, wing, 78; tail, 65 culmen from base, 16; bill from nostril, 10; tarsus, 18.

"Quite rare in the localities collected in by us. A male measures, length, 149; wing, 80.5; tail, 60; culmen, 17.5; tarsus, 18.8; middle toe with claw, 16. A female, length, 159; wing, 82; tail, 62.7; tarsus, 18.5; middle toe with claw, 17.5; culmen, 22. Iris dark brown; legs, feet, and nails light slate; bill black." (*Bourns and Worcester MS.*)

590. **HYLOTERPE WINCHELLI** Bourns and Worcester.

WINCHELL'S THICKHEAD.

Hyloterpe winchelli BOURNS and WORCESTER, Minnesota Acad. Nat. Sci. Occ. Papers (1894), 1, 21; SHARPE, Hand-List (1903), 4, 313; GRANT, Ibis (1896), 549; WHITEHEAD, Ibis (1899), 225; MCGREGOR and WORCESTER, Hand-List (1906), 93.

Hyloterpe major BOURNS and WORCESTER, Minnesota Acad. Nat. Sci. Occ. Papers (1884), 1, 22.

Cebu (*Bourns & Worcester, McGregor*); Masbate (*Bourns & Worcester, McGregor*); Negros (*Bourns & Worcester, Whitehead, Celestino*); Panay (*Bourns & Worcester*); Sibuyan (*Bourns & Worcester, McGregor*); Tablas (*Bourns & Worcester*); Ticao (*McGregor*).

Adult.—Top of head vandyke-brown; back, rump, and edges of wing-feathers and of rectrices reddish brown (near mars-brown of Ridgway); auriculars slightly lighter; sides of neck and of breast similar to the back; under parts white; chest, flanks, and thighs washed with hair-brown. Iris brown or dark red; bill black; legs and nails pale blue or slate-gray. Length, about 170 mm. A male from Cebu measures: Wing, 94; tail, 74; culmen from base, 20; bill from nostril, 12; tarsus, 23. A male from Ticao, wing, 88; tail, 68; culmen from base, 17; bill from nostril, 11; tarsus, 20. A female from Sibuyan, wing, 86; tail, 68 culmen from base, 17; bill from nostril, 11; tarsus, 22.

"Quite common in the forests of the islands named. Rather a shy bird. Has a pleasant whistling note, and may be readily called up. Three males from Negros measure as follows: Wing, 82; tail, 69; culmen, 18.5; tarsus, 20.5; middle toe with claw, 19. Three females from Panay, wing, 81; tail, 66.5; culmen, 17.5; tarsus, 20.5; middle toe with claw, 18. Length measurement not taken in the flesh on any of the above. Two males from Masbate average 165 in length, and a female from same place measures 162. Bill black; iris brown; legs, feet, and nails light slate." (*Bourns and Worcester MS.*)

591. **HYLOTERPE HOMEYERI** Blasius.

HOMEYER'S THICKHEAD.

Hyloterpe homeyeri BLASIUS, Jour. für Orn. (1890), 143; SHARPE, Hand-List (1903), 4, 313; MCGREGOR and WORCESTER, Hand-List (1906), 93.

Bongao (*Everett*); Sibutu (*Everett*); Sulu (*Platen, Bourns & Worcester*); Tawi Tawi (*Bourns & Worcester*).

Adult.—Upper parts, including margins of wing-feathers and rectrices, reddish brown (walnut-brown of Ridgway); head slightly darker; sides of neck like the back; auriculars vinaceous-cinnamon; under parts white; chin, throat, and fore breast streaked with cinnamon; sides of breast and flanks cinnamon; crissum washed with pale canary-yellow. A male from Tawi Tawi measures: Wing, 84; tail, 66; culmen from base, 18; bill from nostril, 11; tarsus, 20. A female, wing, 74; tail, 62; culmen from base, 17; bill from nostril, 10; tarsus, 20.

"Common in Tawi Tawi, less so in Sulu. A deep woods bird; tame and easily shot. Feeds on insects, and usually keeps some distance above the ground. Six males average: Length, 157; wing, 81; tail, 64; culmen, 17.8; tarsus, 19.5; middle toe with claw, 18. Four females, length, 150; wing, 77; tail, 63; culmen, 17.8; tarsus, 19; middle toe with claw, 17.8. Iris dark brown; legs, feet, and nails light brown; bill black. Breeding in Tawi Tawi in the month of September." (*Bourns and Worcester MS.*)

Family **PARIDÆ.**

Bill conoidal and stout, shorter than head; no notch in cutting edge, and tip not hooked; nostrils slightly oval, hidden by the antrorse frontal plumes; rictal bristles short and inconspicuous; wing flat and somewhat pointed; first primary less than one-half of second, the latter less than the third; fourth and fifth longest; third and sixth about equal in length; rectrices broad with nearly square tips; tail much shorter than wing; tarsus stout, less than twice the bill from nostril, distinctly scutellate in front; basal joints of anterior toes more or less united.

Genera.

a^1. Breast and abdomen yellow; rectrices tipped with white or with pale yellow. **Pardaliparus** (p. 604)

a^2. Breast and abdomen black, or dull brown, nearly uniform in color with the back; rectrices without white or light-colored tips........ **Penthornis** (p. 608)

Genus PARDALIPARUS Selys-Longchamps, 1884.

Chin, throat, and much or all of the head black; breast and abdomen yellow; rectrices and many of the wing-feathers with wide tips of white or of pale yellow.

Species.

a^1. A broad yellow band from below eye across auriculars to side of neck, separating the black of chin and throat from the black of head.
  b^1. Larger; bill longer; spots on wing-coverts larger and more nearly white.
    c^1. Bill much smaller; spot on hind neck and stripe on side of head and neck bright canary-yellow.
      d^1. Back and scapulars more olive-green........ **elegans** (p. 605)
      d^2. Back and scapulars white........ **albescens** (p. 606)
    c^2. Bill much larger; spot on neck and stripe on side of head and neck very pale yellow........ **edithæ** (p. 606)
  b^2. Smaller; bill shorter; spots on wing-coverts smaller and washed with yellow. **mindanensis** (p. 607)
a^2. No yellow band on side of head and neck, which are entirely black. **amabilis** (p. 607)

592. **PARDALIPARUS ELEGANS** (Lesson).

ELEGANT TITMOUSE.

Parus elegans LESSON, Traité d'Orn. (1831), 456; GADOW, Cat. Birds Brit. Mus. (1883), 8, 22; WHITEHEAD, Ibis (1899), 224 (habits).

Pardaliparus elegans SHARPE, Hand-List (1903), 4, 328; MCGREGOR and WORCESTER, Hand-List (1906), 94 (part).

Pi-pít mó-tas, Manila.

Bongao (*Everett*); Cebu (*Everett, Bourns & Worcester, McGregor*); Guimaras (*Steere, Steere Exp.*); Luzon (*Cuming, Everett, Möllendorff, Bourns & Worcester, McGregor, Mearns, Bartsch*); Mindoro (*Bourns & Worcester*); Negros (*Everett, Steere Exp., Bourns & Worcester, Celestino*); Panay (*Steere Exp., Bourns & Worcester*); Sulu (*Guillemard, Bourns & Worcester*);* Tawi Tawi (*Bourns & Worcester*).*

Male.—Entire top of head and hind neck glossy black: in the center of hind neck a large irregular yellow spot; upper back mostly black, but with some large spots of pale yellow; scapulars, lower back, and rump olive-green; tail-coverts black; chin, throat, chest, and sides of chest glossy black, separated from the black of head and neck by a broad lemon-yellow stripe which begins under the front of the eye and ends on side of neck; remainder of under parts lemon-yellow; wings black; inner webs of quills edged with white; most of the primaries white toward the tips of outer webs; secondaries and some of the primaries tipped with white; greater and median secondary-coverts with broad white tips, forming two wing-bars; rectrices black, tipped with white, three outer pairs with white on outer webs. Iris and bill black; feet and nails plumbeous. Length, about 120; wing, 65; tail, 42; culmen from base, 11; bill from nostril, 8; tarsus, 17.

Female.—Duller, the chin and throat dark brown instead of glossy black. An adult breeding female from Benguet Province, Luzon, measures: Wing, 62; tail, 37; culmen from base, 11.5; bill from nostril, 8.5; tarsus, 18.

Young.—Birds of the year have the entire upper parts olive-green, but the yellow nuchal patch is always indicated; under parts gray to pale yellow, somewhat washed with olive; chin and throat more or less uniform with the abdomen, but the black patch beginning to show in older individuals; wings and tail marked as in the adult.

"The habits of the elegant titmouse are like those of *P. amabilis;* it feeds in leaves at the ends of branches, often back downward. Ten males average: Length, 110; wing, 63; tail, 37.5; culmen, 12; tarsus, 17; middle toe with claw, 16. Four females, length, 101; wing, 59; tail, 35; tarsus, 16; middle toe with claw, 15; culmen, 11. Iris dark brown; legs and feet slaty blue to black; bill black; nails gray. We found this species breeding in Cebu in the month of June." (*Bourns and Worcester MS.*)

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* The titmouse of Sulu and Tawi Tawi is probably not true *Parus elegans*.

593. PARDALIPARUS ALBESCENS McGregor.

WHITE-BACKED TITMOUSE.

Parus elegans GADOW, Cat. Birds Brit. Mus. (1883), 8, 22 (part); McGREGOR, Bull. Philippine Mus. (1903), 1, 11.
Pardaliparus elegans SHARPE, Hand-List (1903), 4, 328 (part); McGREGOR and WORCESTER, Hand-List (1906), 94 (part).
Pardaliparus albescens McGREGOR, Phil. Jour. Sci. (1907), 2, sec. A, 293.

Masbate (*McGregor*); Ticao (*McGregor*).

Specific characters.—Similar to *P. elegans* Lesson, but with little or no olive-green on upper parts, and the white on scapulars and back much more extensive, to a large extent replacing the black. Male (type), wing, 63; tail, 38; culmen from base, 11; bill from nostril, 8; tarsus, 17.

594. PARDALIPARUS EDITHÆ McGregor.

EDITH'S TITMOUSE.

Pardaliparus elegans McGREGOR, Bull. Philippine Mus. (1904), 4, 27; McGREGOR and WORCESTER, Hand-List (1906), 94 (part).
Pardaliparus edithæ McGREGOR, Phil. Jour. Sci. (1907), 2, sec. A, 294.

Calayan (*McGregor*); Camiguin N. (*McGregor*).

Male.—Top of head, sides of neck and mantle glossy blue-black; an irregular white patch in center of nape; a number of large white spots on mantle; back and rump gray, washed with olivaceous; upper tail-coverts glossy black; chin, throat, and fore breast dead black, forming a large triangular patch, bounded above by a broad band of white, slightly washed with yellow, which extends under eye across ear-coverts onto side of neck; rest of lower parts pale lemon-yellow, washed with olivaceous on sides of neck and abdomen and on flanks; wings glossy black; primaries narrowly edged with gray on their outer webs and with white on the inner; greater and median coverts with white spots at tips (much smaller than in *P. elegans* and not forming bands as in that species); secondaries tipped with white; tail black with white markings as in *P. elegans,* but the white tips much smaller and white on outer webs of two outer pairs of rectrices. Bill black except basal third which is horn-blue; legs dull blue; nails horn-brown. Length, 122; wing, 67; tail, 43; culmen from base, 12; bill from nostril, 10; tarsus, 18; middle toe with claw, 17.

Female.—Similar to the male, but somewhat duller and upper parts more olive-green. Wing, 63; tail, 38; culmen from base, 12; bill from nostril, 9; tarsus, 18.

595. PARDALIPARUS MINDANENSIS (Mearns).

MINDANAO TITMOUSE.

Pardaliparus elegans mindanensis MEARNS, Proc. Biol. Soc. Wash. (1905), 18, 8.

Pardaliparus mindanensis MCGREGOR and WORCESTER, Hand-List (1906), 94.

Kah-too-reé-nay, Bagobo of Mount Apo.

Mindanao (*Mearns, Clemens*).

Adult male.—"Similar to *Pardaliparus elegans elegans,* but smaller with a relatively smaller bill; coloration heavier and yellower, the black of chin and throat extending to the chest; whitish spots of upper wing-coverts and tail-feathers washed with yellow. Length, 117; alar expanse, 210; wing, 67; tail, 41; culmen, 9.5; tarsus, 16; middle toe with claw, 15." (*Mearns.*)

The Mindanao titmouse differs from the species found in more northern localities in the characters given by Mearns. A male from Lake Lanao measures: Wing, 63; tail, 37; culmen from base, 10; bill from nostril, 8; tarsus, 15. A female, wing, 62; tail, 36; culmen from base, 10; bill from nostril, 8; tarsus, 15.

596. PARDALIPARUS AMABILIS (Sharpe).

PALAWAN TITMOUSE.

Parus amabilis SHARPE, Trans. Linn. Soc. 2d. ser. Zool. (1877), 1, 338, pl. 5, fig. 2; GADOW, Cat. Birds Brit. Mus. (1883), 8, 22.

Pardaliparus amabilis SHARPE, Hand-List (1903), 4, 327; MCGREGOR and WORCESTER, Hand-List (1906), 93.

Balabac (*Steere, Everett*); Palawan (*Whitehead, Platen, Steere Exp., Bourns & Worcester, Celestino, White*).

Adult male.—Entire head, neck, chin, throat, and chest glossy blue-black; neck bordered behind by a mantle of clear canary-yellow; back and rump lavender-gray; tail-coverts black; breast and remainder of under parts bright lemon-yellow; wings and tail black; greater and median coverts and primary-coverts broadly tipped with white; primaries with small white tips or marks on outer webs; secondaries with wider white tips and pale gray edges; inner webs of quills edged with white; rectrices broadly tipped with white and all but the center pair with outer webs white, but this much reduced in pair next the center pair. Wing, 72; tail, 46; culmen from base, 10.5; bill from nostril, 7; tarsus, 16.

Adult female.—Black of head and throat much duller than in the male; yellow of the mantle reduced to a narrow band; remainder of the back olive-green, somewhat mixed with lavender-gray on rump; white marks on wings and tail much smaller than in the male. Wing, 0; tail, 44; culmen from base, 10.5; bill from nostril, 7; tarsus, 16.

"*Young.*—Very different from the adult. It is brown above with an olive-greenish tinge, the head and face browner. Below it is yellow, duller than in the adult, the throat olive; wings and tail browner than in the adult, with the same white spotting, but not so pronounced." (*Sharpe.*)

Genus PENTHORNIS Hellmayr, 1901.

The genus *Penthornis* is distinguished from *Pardaliparus* by its nearly uniform black plumage and white frontal band.

Species.

a^1. Wings uniform black with no white bar.......................... **semilarvatus** (p. 608)
a^2. Wings black, but with a conspicuous white bar near the base of primaries and secondaries .... **tessacourbe** (p. 608)

597. PENTHORNIS SEMILARVATUS (Salvadori).

WHITE-FACED BLACK TITMOUSE.

Melaniparus semilarvatus SALVADORI, Atti Soc. Ital. Sc. Nat. (1865), 8, 375; Ibis (1879), 300, pl. 9.
Parus semilarvatus GADOW, Cat. Birds Brit. Mus. (1883), 8, 38; WHITEHEAD, Ibis (1899), 224 (habits).
Penthornis semilarvatus SHARPE, Hand-List (1903), 4, 333; MCGREGOR and WORCESTER, Hand-List (1906), 94.

Luzon (*Whitehead, McGregor*); Negros (*Steere Exp.*).

Adult male.—Greater part of plumage glossy black, the following parts white: Forehead to opposite center of eye, lores, line under eye, fore part of cheeks; a concealed patch on hind neck formed by the white bases of the feathers; part of the inner webs of wing and quills, wing-lining, axillars, and outer webs of under tail-coverts white. In one specimen before me, probably immature, the tail-coverts are entirely black. Iris light brown; bill, legs, and nails black. Length, about 130; wing, 75; tail, 50; culmen from base, 12; bill from nostril, 9; tarsus, 17.

Female.—A female from Bataan Province, Luzon, has the under parts mostly seal-brown but this is probably because of immaturity. Wing, 71; tail, 59; culmen from base, 12; bill from nostril, 9; tarsus, 15.

598. PENTHORNIS TESSACOURBE (Scopoli).

WHITE-WINGED BLACK TITMOUSE.

Muscicapa tessacourbe SCOPOLI, Del. Flor. et Faun. Insubr. (1786), 2, 95 (based on Sonnerat's figure).
Muscicapa luzoniensis GMELIN, Syst. Nat. (1788), 1, pt. 2, 942 (same basis as Scopoli's name).
Micropus nehrkorni BLASIUS, Jour. für Orn. (1890), 147.
Penthornis luzoniensis SHARPE, Hand-List (1903), 4, 333; MCGREGOR and WORCESTER, Hand-List (1906), 94.

Mindanao (*Sonnerat?, Platen*).

Male.—Similar to *Penthornis semilarvatus*, but with a broad white band across the inner primaries and outer secondaries near their bases.

"Length, 140; wing, 78.5; tail, 53; culmen, 12.5; tarsus, 15." (*Blasius.*)

Muscicapa tessacourbe Scopoli and *M. luzoniensis* Gmelin were both based upon Sonnerat's plate. The species was unrecognized until Platen collected a male in Mindanao. Blasius described this specimen under the name *Micropus nehrkorni*, suggesting the probability that it was the same as *Muscicapa luzoniensis*. Sonnerat's figure does not look much like a *Penthornis.*

Family **SITTIDÆ.**

Bill slender and pointed, about as long as head; neither notched nor toothed; culmen but very slightly curved; nostrils oval, nearly hidden by the antrorse frontal plumes; shafts of the latter hair-like and extending beyond the nostrils; rictal bristles very small; wing long, pointed and somewhat curved; first primary equal to about one-third of second; fourth and fifth nearly equal and longest; second between fifth and sixth in length; tail square, very short, scarcely more than one-half the wing; tarsus distinctly scutellate, equal to culmen from base; three anterior toes with their basal joints united; outer toe much longer than inner toe; hind toe with claw much longer than tarsus and nearly equal to middle toe with claw.

Genus CALLISITTA Bonaparte, 1850.

Upper parts of body blue, forehead black; under parts, buff or cinnamon, more or less washed with lilac.

Species.

a^1. Lores entirely black; mantle uniform blue like the back...... **palawana** (p. 609)
a^2. Lores not entirely black, the lower part white or buff; mantle somewhat ligher than the rest of the back.
  b^1. Breast and abdomen lighter, with little or no lilac wash.
    c^1. Larger; under parts much darker; breast vinaceous-cinnamon. **œnochlamys** (p. 610)
    c^2. Smaller; under parts much lighter; breast cream-buff.. **mesoleuca** (p. 610)
  b^2. Breast and abdomen darker, and heavily washed with lilac.. **lilacea** (p. 611)

599. CALLISITTA PALAWANA (Hartert).

PALAWAN NUTHATCH.

Sitta frontalis Gadow, Cat. Birds Brit. Mus. (1883), **8**, 358 (part).
Dendrophila frontalis Whitehead, Ibis (1893), 53; Sharpe, Hand-List (1903), **4**, 351 (part).
Sitta frontalis palawana Hartert, Bull. Brit. Orn. Club (1905), **16**, 11.
Callisitta frontalis McGregor and Worcester, Hand-List (1906), 94.

Balabac (*Steere, Everett*); Palawan (*Steere, Platen, Whitehead, Steere Exp., Bourns & Worcester, Doherty, Celestino, White*).

Adult male.—Above french-blue; lores and forehead velvet-black; a black stripe over eye, extending from the black frontal patch to nape; under parts vinaceous-buff, chin and throat considerably paler; abdomen and sides slightly washed with lilac; sides of head vinaceous-buff, slightly washed with violet; a blue line under eye; alula, primary-coverts, and primaries mostly black, some of the feathers narrowly edged with blue; secondaries and secondary-coverts mostly blue; rectrices blue, each feather with a large black mark which occupies much of the inner web and part of the outer web. A male from Puerto Princesa, Palawan, measures: Length, 127; wing, 75; tail, 42; culmen from base, 15; bill from nostril, 10; tarsus, 17.

Adult female.—Like the male, but with no black line over eye and ear-coverts, although there is an indication of the line. Wing, 72; tail, 41; culmen from base, 15.5; bill from nostril, 10; tarsus, 15.

"Eye straw-yellow; bill vermilion; orbital skin gray; legs light brown." (*Whitehead.*)

600. **CALLISITTA ŒNOCHLAMYS** (Sharpe).

LOWLAND NUTHATCH.

Dendrophila œnochlamys SHARPE, Trans. Linn. Soc. 2d. ser. Zool. (1877), 1, 338, pl. 53, fig. 3; Hand-List (1903), 4, 351; WHITEHEAD, Ibis (1899), 227 (distribution).
Sitta œnochlamys GADOW, Cat. Birds Brit. Mus. (1883), 8, 359.
Callisitta œnochlamys MCGREGOR and WORCESTER, Hand-List (1906), 94 (error in locality list).

Cebu (*Everett, Bourns & Worcester, McGregor*); Guimaras (*Steere*); Luzon (*Whitehead, McGregor*); Negros (*Whitehead, Celestino*); Panay (*Steere Exp., Bourns & Worcester*).

Adult male.—A small white spot on lower part of lores; very similar to *Callisitta palawana,* but slightly darker blue above, bases of mantle feathers vinaceous-buff forming an ill-defined patch; under parts slightly darker than in *C. palawana* and more strongly washed with lilac; ear-coverts washed with blue. A male from Bataan Province, Luzon, measures: Length, 127; wing, 75; tail, 41; culmen from base, 16; bill from nostril, 11; tarsus, 17.

Adult female.—Similar to the male, but lacking the black line over eye and auriculars.

601. **CALLISITTA MESOLEUCA** (Grant).

HIGHLAND NUTHATCH.

Dendrophila mesoleuca GRANT, Bull. Brit. Orn. Club. (1894), 3, 49; Ibis (1895), 450, pl. 4, fig. 2; WHITEHEAD, Ibis (1899), 227 (habits, plumage); SHARPE, Hand-List (1903), 4, 351.
Callisitta mesoleuca MCGREGOR and WORCESTER, Hand-List (1906), 94.

Ta-ká, Benguet.
Luzon (*Whitehead, McGregor, Worcester, Mearns, Bartsch*).

Adult male.—A small white spot on lower part of lores; middle of mantle with the bases of feathers pale vinaceous-buff to whitish, forming a patch; under parts pale buff with no lilac wash; throat and chin very pale, almost white. Iris yellow; bill and bare skin around eye greenish yellow; legs and nails dark green. Length, about 140; wing, 75; tail, 43; culmen from base, 15; bill from nostril, 10.5; tarsus, 16.

Adult female.—Differs from the male in having no black line over the eye to nape. Wing, 72; tail, 40; culmen from base, 17; bill from nostril, 12; tarsus, 16.

Callisitta mesoleuca is very abundant in the mountains of Benguet Province, while *C. œnochlamys* inhabits the forests of the lowlands.

602. CALLISITTA LILACEA (Whitehead).

LILAC-FACED NUTHATCH.

Dendrophila lilacea Whitehead, Bull. Brit. Orn. Club (1897), 6, 49; Ibis (1899), 228; Sharpe, Hand-List (1903), 4, 351; Grant, Ibis (1906), 474.

Callisitta lilacea McGregor and Worcester, Hand-List (1906), 94.

Basilan (*Steere Exp., Bourns & Worcester, McGregor*); Leyte (*Whitehead*); Mindanao (*Bourns & Worcester, Goodfellow*); Samar (*Bourns & Worcester, Whitehead*).

Adult male.—Spot on lower part of lores buff; hind neck, mantle, and sides of neck vinaceous-buff, washed with lilac; throat vinaceous-buff deepening to vinaceous-cinnamon on chest, and on the rest of under parts which are heavily washed with lilac. A male from Basilan measures: Length, 120; wing, 73; tail, 39; culmen from base, 15; bill from nostril, 10; tarsus, 16.

Adult female.—Similar to the male, but lacking the black line over eye to nape. A female from Basilan measures: Wing, 70; tail, 40; culmen from base, 16; bill from nostril, 10; tarsus, 15.

Family **CERTHIIDÆ.**

Bill gently curved, moderate in length, slender, decidedly compressed beyond nostril, and with an obsolete notch in cutting edge near tip; culmen with a distinct ridge; nostril-opening linear, exposed, and overhung by an operculum; rictal bristles few and very short; no frontal bristles; a number of long retrorse hairs springing from among the feathers of forehead; wing moderate in length, flat, and somewhat pointed; first primary slender and less than one-third of second, the latter nearly equal to third, fourth, and fifth which are subequal and longest; tail square, little more than one-half of wing; divisions between tarsal scutes obsolete; tarsus, longer than bill from nostril, and equal to, or shorter than, middle toe with claw. The characters detailed above are taken from *Rhabdornis,* a genus not typical of the family, but the only Philippine representative of the *Certhiidæ.*

Genus RHABDORNIS Reichenbach, 1853.

Characters the same as those given for the Family. Upper parts brown or gray, and black, streaked with white; under parts white, sides streaked with brown or black.

Species.

a^1. Head and nape heavily streaked with white.
  b^1. Bill longer, about 16 mm. from nostril; upper parts grayer. **mystacalis** (p. 612)
  b^2. Bill shorter, about 14 mm. from nostril; upper parts browner. **minor** (p. 612)
a^2. Head and nape uniform dull brown or else dark gray.......... **inornatus** (p. 613)

603. RHABDORNIS MYSTACALIS (Temminck).

PHILIPPINE CREEPER.

Meliphaga mystacalis TEMMINCK, Pl. Col. (1825), pl. 335, fig. 2.
Climacteris mystacalis GADOW, Cat. Birds Brit. Mus. (1883), 8, 339.
Rhabdornis mystacalis SHARPE, Hand-List (1903), 4, 356; WHITEHEAD, Ibis (1899), 226 (habits, anatomy); MCGREGOR and WORCESTER, Hand-List (1906), 95.

Luzon (*Meyer, Möllendorff, Steere Exp., Bourns & Worcester, Whitehead, McGregor*); Masbate (*Bourns & Worcester*); Negros (*Bourns & Worcester, Whitehead, Celestino*); Panay (*Steere Exp., Bourns & Worcester*).

Male.—Top of head and hind neck with broad white shaft-streaks; back and rump drab-gray, the shafts of the feathers white; wings like the back; primaries, secondaries, and rectrices blackish brown; inner webs of wing-quills edged with light buff; stripe under eye, on ear-coverts, and on side of neck black; under parts white; feathers of sides, flanks, and crissum bordered with black, producing a streaked appearance; under wing-coverts and axillars pale buff. Length, about 155. A male from Bataan Province, Luzon, measures: Wing, 82; tail, 49; culmen from base, 24; bill from nostril, 17; tarsus, 18.

Female.—Top of head, nape, and ear-coverts brown.

"This creeper feeds in deep woods, but is more common in second growth; it is nowhere very abundant. Very variable in size and in length of bill. Three males average as follows: Culmen, 26; wing, 80; tail, 28; tarsus, 20; middle toe with claw, 20.5. A female, length, 149; wing, 80; tail, 49; culmen, 23; tarsus, 18; middle toe with claw, 19.5. Bill, legs, and feet black." (*Bourns and Worcester MS.*)

604. RHABDORNIS MINOR Grant.

LESSER CREEPER.

Rhabdornis minor GRANT, Bull. Brit. Orn. Club (1896), 6, 17; Ibis (1897), 234; WHITEHEAD, Ibis (1899), 227 (habits); SHARPE, Hand-List (1903), 4, 356; MCGREGOR and WORCESTER, Hand-List (1906), 95.

Basilan (*Celestino*); Bohol (*McGregor*); Dinagat (*Everett*); Leyte (*Steere Exp., Whitehead*); Mindanao (*Everett, Celestino*); Samar (*Whitehead, Bourns & Worcester*).

Male.—Differs from *Rhabdornis mystacalis* in having the back brown (near prout's brown of Ridgway) instead of gray, and in having the bill decidedly shorter. Length, about 142. A male from Bohol measures: Wing, 78; tail, 45; culmen from base, 19; bill from nostril, 13; tarsus, 19.

Female.—Differs from the male in having general color of crown, ear-coverts, and sides of neck brown instead of black. A female from Basilan measures: Wing, 77; tail, 43; culmen from base, 18; bill from nostril, 12; tarsus, 18.

605. **RHABDORNIS INORNATUS** Grant.

PLAIN CREEPER.

Rhabdornis inornatus GRANT, Bull. Brit. Orn. Club (1896), 6, 18; Ibis (1897), 235, pl. 6, fig. 2; WHITEHEAD, Ibis (1899), 227.
Rhabdornis inornata SHARPE, Hand-List (1903), 4, 356; MCGREGOR and WORCESTER, Hand-List (1906), 95.

Mindanao (*Clemens*); Samar (*Whitehead*).

"*Adult male.*—Easily distinguished from *R. mystacalis* and *R. minor* by having the bill altogether stouter and stronger, the top of the head and nape uniform dull grayish brown; mantle brown with whitish shafts only to the feathers; the lesser and median wing-coverts with well-marked white shaft-stripes; chin, throat, and fore neck grayish white; the margins of the sides and flank-feathers narrower and browner. 'Iris dark brown; bill and feet black.' (*Whitehead.*) Length, 157; culmen, 19; wing, 81; tail, 51; tarsus, 20." (*Grant.*)

Female.—Similar to the male, but top of head browner. Wing, 89; tail, 57; exposed culmen, 16; tarsus, 20; middle toe with claw, 23.

Family **ZOSTEROPIDÆ.**

Bill curved and pointed, very similar to the bill of *Dicæum,* but without serrations in the cutting edges; nostril opening beneath an opercle or scale; rictal bristles inconspicuous; eye usually surrounded by a ring of short white feathers of a silky texture; wing with nine primaries; tail square, moderate in length and extending beyond the toes.

Genera.

a^1. Upper parts nearly uniform olive-green or greenish yellow; length rarely more than 125 mm .... **Zosterops** (p. 613)
a^2. Upper parts uniform cinnamon-rufous; length more than 150 mm. **Hypocryptadius** (p. 621)

Genus ZOSTEROPS Vigors and Horsfield, 1826.

Culmen decidedly ridged; eye, except in *Z. goodfellowi,* surrounded by a ring of white feathers; general color yellow and yellowish green, the abdomen in some species white, gray, or drab.

*Species.**

- a^1. Eye surrounded by a circle of white feathers; chin and throat, at least, bright lemon-yellow; much smaller in size; wing less than 60 mm.
  - b^1. Under parts not entirely yellow; sides of breast and of abdomen whitish, ashy gray, or plumbeous.
    - c^1. Median yellow line on breast and abdomen obsolete or wanting; breast and abdomen white or very pale gray.
      - d^1. Smaller; wing, 53 mm. or less; culmen from base, 12 or less; forehead duller and less extensively yelow.
        - e^1. Lighter and more yellow above; ear-coverts lighter and more yellowish .... **meyeni** (p. 615)
        - e^2. Darker and less yellow above; ear-coverts darker and more greenish olive.
          - f^1. Smaller.
            - g^1. Smaller, with no dusky shade under the eye.. **whiteheadi** (p. 615)
            - g^2. Larger, with a dusky shade under the eye........ **vulcani** (p. 616)
          - f^2. Larger .... **halconensis** (p. 616)
      - d^2. Larger; wing, about 58 mm.; culmen from base, 14; forehead much brighter yellow .... **batanis** (p. 616)
    - c^2. Median yellow line on breast and abdomen well developed; sides cinereous or ashy gray.
      - d^1. Without a distinct blackish line under the eye; upper parts more yellowish.
        - e^1. Smaller; sides of breast lighter gray; forehead more yellow. **siquijorensis** (p. 617)
        - e^2. Larger; sides of breast darker gray; forehead less yellow. **boholensis** (p. 617)
      - d^2. With a distinct dusky line under eye; upper parts more greenish.
        - e^1. Lores yellow .... **everetti** (p. 618)
        - e^2. Lores dusky .... **basilanica** (p. 618)
  - b^2. Under parts entirely yellow.
    - c^1. Greatest width of white eye-ring 3 mm........ **meyleri** (p. 618)
    - c^2. Greatest width of white eye-ring about 1.5 mm.
      - d^1. Upper parts yellower; under parts brighter and yellower.
        - e^1. Larger; wing, about 55 mm.; a distinct black line under eye to base of bill .... **richmondi** (p. 619)
        - e^2. Smaller; wing, about 50 mm.; dusky line under eye less distinct and not reaching the base of bill.
          - f^1. General color duller........ **luzonica** (p. 619)
          - f^2. General color brighter; lores and frontal band brilliant golden yellow .... **aureiloris** (p. 619)
      - d^2. Upper parts greener; under parts paler and, except on chin and throat, slightly greener; eye-circle interrupted in front by a small black spot. **nigrorum** (p. 620)

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* The construction of a key to the species of silvereyes is rendered very difficult by the nature of the characters upon which a number of the species are based. Some of the species can be determined only by the actual comparison of specimens in fresh plumage. Immediately following the molt, the colors are bright and yellowish, but after a few months the feathers become much abraded and the colors become duller, dingier and greener.

a^2. Eye without a circle of white feathers; chin and fore throat very pale cream-buff; wing more than 65 mm.

  b^1. Larger; bill more slender; front half of head olive-green. **goodfellowi** (p. 620)

  b^2. Smaller; bill stouter; front half of head grayish brown. **malindangensis** (p. 621)

606. ZOSTEROPS MEYENI Bonaparte.

MEYEN'S SILVEREYE.

Zosterops meyeni BONAPARTE, Consp. Genera Avium (1850), 1, 398; GADOW, Cat. Birds Brit. Mus. (1884), 9, 180; GRANT, Ibis (1895), 452; WHITEHEAD, Ibis (1899), 231 (habits); MCGREGOR and WORCESTER, Hand-List (1906), 95.

Cu-sil-sil, Benguet; *ti-tit*, Calayan.

Banton (*Celestino*); Calayan (*McGregor*); Lubang (*McGregor*); Luzon (*Meyen, Steere Exp., Möllendorff, Bourns & Worcester, Whitehead, McGregor, Bartsch*); Verde (*McGregor*).

Male.—Above olive-yellow, brighter and yellower on forehead and tail-coverts; rectrices and wing-feathers brown and, except first alula feather and first primary, edged with olive-yellow on outer webs; primaries, secondaries, and rectrices edged with white on inner webs; a narrow ring around eye silky white, below this slightly dusky; lores olive-yellow; sides of head and neck like back; chin, throat, chest, and crissum light lemon-yellow; breast and abdomen white, very faintly drab-gray on sides and with a wash of yellow on median line; thighs, lining of wing, and axillars white faintly washed with yellow. A male from Manila measures: Length, 100; wing, 52; tail, 36; culmen from base, 12; bill from nostril, 7; tarsus, 16.

Female.—Similar to the male. A female from Nueva Ecija Province, Luzon, measures: Wing, 52; tail, 36; culmen from base, 12; bill from nostril, 7; tarsus, 16.

"Shot in great numbers in bamboo clumps in the open fields. Four males average as follow: Wing, 53; tail, 37; culmen, 14; tarsus, 15; middle toe with claw, 13.7. Three females, wing, 51; tail, 37; culmen, 13; tarsus, 14.7; middle toe with claw, 14.4. Iris light brown; legs, feet, and nails leaden." (*Bourns and Worcester MS.*)

607. ZOSTEROPS WHITEHEADI Hartert.

WHITEHEAD'S SILVEREYE.

Zosterops whiteheadi HARTERT, Bull. Brit. Orn. Club (1903), 14, 13; MCGREGOR and WORCESTER, Hand-List (1906), 95.

Luzon (*Whitehead, Worcester, McGregor, Mearns, Bartsch*).

Diagnosis.—Similar to *Zosterops meyeni* from the vicinity of Manila, but male and female "differ conspicuously in being darker above and not so yellow, especially on the crown and forehead, in having darker and more greenish olive ear-coverts, all the feathers of the upper side having much darker gray bases, more greenish flanks, and a black loral patch which is not developed in *Z. meyeni.* Wing ♂ ♀, 52 to 53.5; tail, 36; bill, 9." (*Hartert.*)

608. **ZOSTEROPS VULCANI** (Hartert).

MOUNT APO SILVEREYE.

Zosterops whiteheadi vulcani HARTERT, Bull. Brit. Orn. Club (1903), 14, 14.
Zosterops vulcani McGREGOR and WORCESTER, Hand-List (1906), 95; GRANT, Ibis (1906), 473.

Mindanao (*Goodfellow, Mearns*).

Diagnosis.—"Entirely like *Z. w. whiteheadi* but larger and with a dusky shade under the eye. Wing, 58.8; tail, 40; bill, 10.5." (*Hartert.*)

A male from Mount Apo measures: Wing, 55; tail, 38; culmen from base, 12.5; bill from nostril, 8; tarsus, 18. A female, wing, 54; tail, 37.5; culmen from base, 12.5; bill from nostril, 7.5.

This subspecies appears to be very slightly different from *Zosterops meyeni.*

609. **ZOSTEROPS HALCONENSIS** Mearns.

MOUNT HALCON SILVEREYE.

Zosterops halconensis MEARNS, Phil. Jour. Sci. (1907), 2, sec. A, 360.

Mindoro (*Mearns*).

"*Characters.*—Sexes alike. Similar to *Zosterops vulcani,* but slightly larger. Wing, 56 against 55 millimeters; tail, 42 to 41; culmen, 12 to 11.5. Color yellower, but without a longitudinal yellow stripe on middle of abdomen; sides more whitish gray; cheeks and ear-coverts paler and yellower, but the yellow confined to the chin and throat not suffusing the upper chest; upper surfaces of a more golden green. From *Zosterops whiteheadi* the Mindoro form is easily distinguished, when similar seasonal plumages are compared, by its greater size and more yellow coloration." (*Mearns.*)

610. **ZOSTEROPS BATANIS** McGregor.

BATANES SILVEREYE.

Zosterops batanis McGREGOR, Phil. Jour. Sci. (1907), 2, sec. A, 343.

Da-ti-ú, Batan.
Batan (*McGregor*).

Male (*type*).—Above yellowish green or light olive-yellow, brighter on crown, rump, and upper tail-coverts; lores and frontal band bright yellow; eye surrounded by a ring of silky white feathers, interrupted in front by a small dusky spot; an indistinct dusky line below eye-circle; auriculars and sides of neck light yellowish green like the crown; chin, throat, breast, and under tail-coverts bright yellow like the forehead;

a faint yellow wash on middle of breast and abdomen; wing-coverts olive-yellow like the back; quills blackish and, except first primary, edged with olive-yellow, inner webs margined with white; edge of wing light yellow; axillars and wing-lining white, faintly washed with yellow; rectrices blackish edged with olive-yellow. Iris light brown; upper mandible black; lower mandible and legs leaden blue; nails brown. Length, 127; wing, 58; tail, 43; culmen from base, 14; bill from nostril, 8.5; tarsus, 18. Iris pale brown; upper mandible black; lower mandible and legs lead-blue; nails brown.

Female.—Similar to the male. Wing, 55; tail, 40; culmen from base, 13; bill from nostril, 8; tarsus, 18.

A nest containing four fresh eggs of the Batan silvereye was taken on June 1, 1907. The nest, compactly made of plant fibers, was situated in the fork of a small tree; its inside diameter is 63 mm.; inside depth, 33. The eggs are pale blue and unmarked; they measure from 16.5 to 17.5 mm. in length, and from 12.1 to 12.9 mm. in breadth. Two nests containing young birds were found on the 5th of June.

611. ZOSTEROPS SIQUIJORENSIS Bourns and Worcester.

SIQUIJOR SILVEREYE.

Zosterops siquijorensis BOURNS and WORCESTER, Minnesota Acad. Nat. Sci. Occ. Papers (1894), **1**, 21; GRANT, Ibis (1896), 551; WHITEHEAD, Ibis (1899), 232 (habits, distribution); MCGREGOR and WORCESTER, Hand-List (1906), 95.

Bu-lai-og', Siquijor.

Negros (*Whitehead, Celestino*); Siquijor (*Bourns & Worcester, Celestino*).

Male and female.—Above bright olive-yellow similar to *Z. meyeni*, but with a well-marked, yellow, frontal band; lores yellow; a faint dusky line under eye; below similar to *Z. meyeni*, but with a well-developed median line of lemon-yellow; sides of breast and of abdomen pale ashy gray. A male from Siquijor measures: Wing, 54; tail, 42; culmen from base, 12; bill from nostril, 8; tarsus, 17. A female, wing, 54; tail, 39; culmen from base, 13; bill from nostril, 8.5; tarsus, 16.

612. ZOSTEROPS BOHOLENSIS McGregor.

BOHOL SILVEREYE.

Zosterops læta (not of De Vis) MCGREGOR, Phil. Jour. Sci. (1907), **2**, sec. A, 329.

Zosterops boholensis MCGREGOR, Phil. Jour. Sci. (1908), **3**, sec. A. 283.

Bohol (*McGregor*).

Male and female.—Similar to *Z. siquijorensis*, but the sides of breast and abdomen darker ash-gray or cinereous; white eye-circle interrupted in front by a small dusky spot. The type measures: Length, 119; wing, 60; tail, 43; culmen from base, 12; bill from nostril, 8; tarsus, 15. A female, wing, 51; tail, 36; culmen from base, 12; bill from nostril, 7.5; tarsus, 15.

613. ZOSTEROPS EVERETTI Tweeddale.

CEBU SILVEREYE.

Zosterops everetti Tweeddale, Proc. Zool. Soc. (1877), 762; Gadow, Cat. Birds Brit. Mus. (1884), 9, 163; Bourns and Worcester, Minnesota Acad. Nat. Sci. Occ. Papers (1894), 1, 57 (critical notes); McGregor and Worcester, Hand-List (1906), 95.

Cebu (*Everett, Steere Exp., Bourns & Worcester, McGregor*).

Adult.—Very similar to *Z. basilanica,* but the lores dusky; from *Z. siquijorensis* and *boholensis* it differs in having a distinct blackish line under the eye. A male measures: Wing, 53; tail, 37; culmen from base, 12.5; bill from nostril, 8; tarsus, 15. A female, wing, 51; tail, 38; culmen from base, 12; bill from nostril, 7.5; tarsus, 15.

614. ZOSTEROPS BASILANICA Steere.

STEERE'S SILVEREYE.

Zosterops basilanica Steere, List Birds and Mams. Steere Exped. (1890), 21; Grant, Ibis (1896), 552 (critical notes); (1897), 238; (1906), 473; Whitehead, Ibis (1899), 232; McGregor and Worcester, Hand-List (1906), 95.

Basilan (*Steere Exp., Bourns & Worcester, McGregor*); Bongao (*Everett*); Dinagat (*Everett*); Leyte (*Steere Exp., Whitehead*); Mindanao (*Everett, Koch & Schadenberg, Bourns & Worcester, Goodfellow*); Papahag (*Bartsch*); Samar (*Steere Exp., Bourns & Worcester, Whitehead*); Sulu (*Bourns & Worcester*).

Adult.—Resembles *Z. everetti,* but the lores dusky; from *Z. boholensis* and *siquijorensis* it differs in having a distinct dusky line under the eye and the upper parts more greenish; sides of breast and of abdomen dark cinereous. A male from Basilan measures: Wing, 51; tail, 39; culmen from base, 11; bill from nostril, 7; tarsus, 16. A female, wing, 51; tail, 40; culmen from base, 12; bill from nostril, 7; tarsus, 15.

615. ZOSTEROPS MEYLERI McGregor.

CAMIGUIN SILVEREYE.

Zosterops meyleri McGregor, Phil. Jour. Sci. (1907) 2, Sec. A, 348.

Camiguin N. (*McGregor*).

Male (*type*).—Above bright olive-yellow, lighter on rump; forehead and lores golden yellow; ear-coverts and sides of neck like the back; a wide circle of short, silky, white feathers about the eye bordered below by a dusky line; below bright lemon-yellow; sides slightly dusky; wing-feathers and rectrices dark brown edged with olive-yellow. Iris brown; bill black, but basal two-thirds of lower mandible leaden blue; legs and nails flesh-color. Length, 114; wing, 53; tail, 38; culmen from base, 12; bill from nostril, 8; tarsus, 16.

Female.—Similar to the male in color. Wing, 51; tail, 37; culmen from base, 12; bill from nostril, 8; tarsus, 15.

In color this species is similar to *Z. richmondi,* but it lacks the black line under the eye and has the white eye-ring much wider than in any other Philippine species.

616. **ZOSTEROPS RICHMONDI** McGregor.

CAGAYANCILLO SILVEREYE.

Zosterops flavissima (not of Hartert), McGregor, Bull. Philippine Mus. (1904), 4, 26.
Zosterops richmondi McGregor, Proc. Biol. Soc. Wash. (1904), 17, 165; McGregor and Worcester, Hand-List (1906), 95.

Tam-mig, Cagayancillo.
Cagayancillo (*McGregor*).

Adult male (*type*).—Resembles in general color the male of *Z. meyleri,* but has a distinct black line under the eye, a small dusky spot in front of the eye, and a narrow eye-ring. Length, 114; wing, 56; tail, 44; culmen from base, 14; bill from nostril, 8; tarsus, 17.

Female.—Similar to the male. Wing, 54; tail, 40; culmen from base, 13; bill from nostril, 8; tarsus, 17.

617. **ZOSTEROPS LUZONICA** Grant.

LUZON SILVEREYE.

Zosterops luzonica Grant, Bull. Brit. Orn. Club (1895), 4, 22; Ibis (1895), 257; (1896), 120; Whitehead, Ibis (1899), 232 (habits, distribution); McGregor and Worcester, Hand-List (1906), 95.

Luzon (*Whitehead*).

Diagnosis.—"Most nearly allied to *Z. nigrorum* from Negros, but distinguished by having no black spot in front of the eye, the upper parts brighter olive, and the yellow of the throat and middle of the under parts more golden with no greenish tinge. Length, 96.5; wing, 46; tail, 35.5; tarsus, 15." (*Grant.*)

618. **ZOSTEROPS AUREILORIS** Grant.

GOLDEN-LORED SILVEREYE.

Zosterops aureiloris Grant, Bull. Brit. Orn. Club (1895), 4, 40; Ibis (1895), 453; (1896), 468; Whitehead, Ibis (1899), 232; McGregor and Worcester, Hand-List (1906), 95.

Caluya (*Porter*);* Luzon (*Whitehead, McGregor*); Mindoro (*Whitehead*).

"This beautiful species is most nearly allied to *Z. luzonica* Grant, from the Mayon Volcano, in the Albay district, but is distinguished by its altogether brighter plumage above and below, and by the brilliant golden yellow frontal band, which forms a conspicuous patch on the lores and in front of the eyes.

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* The identity of Porter's Caluya specimen with *Zosterops aureiloris* is somewhat doubtful.

"*Adult male.*—Length, about 114; wing, 47 to 52; tail, 35.5 to 38; tarsus, 15.

"*Adult female.*—Length, about 114; wing, 49.5 to 52; tail, 35.5 to 38; tarsus, 15." (*Grant.*)

A male from Bataan Province, Luzon, measures: Wing, 50; tail, 35; culmen from base, 12; bill from nostril, 8; tarsus, 15.

619. **ZOSTEROPS NIGRORUM** Tweeddale.

NEGROS SILVEREYE.

Zosterops nigrorum TWEEDDALE, Proc. Zool. Soc. (1878), 286; GADOW, Cat. Birds Brit. Mus. (1884), 9, 186; WHITEHEAD, Ibis (1899), 232 (habits); MCGREGOR and WORCESTER, Hand-List (1906), 95.

Cresta de Gallo (*McGregor*); Masbate (*Bourns & Worcester, McGregor*); Negros (*Everett, Steere Exp., Bourns & Worcester, Whitehead*); Panay, (*Steere Exp., Bourns & Worcester*); Ticao (*McGregor*).

Adult.—Similar to *Z. aureiloris.* Above dark olive-yellow; frontal band and lores bright lemon-yellow; a black line under eye; eye-ring interrupted in front by a small black spot; sides of head and neck like the back; chin and throat lemon-yellow, becoming more greenish on breast and abdomen. In general color this species is much greener than *Z. aureiloris* or other related species. Iris greenish white; bill dark above, bluish horn-color below; legs plumbeous; nails light horn-color. A male from Masbate measures: Length, 114; wing, 53; tail, 37; culmen from base, 12; bill from nostril, 8; tarsus, 15. A female from Masbate, wing, 52; tail, 36; culmen from base, 12; bill from nostril, 7.5; tarsus, 15.

"Found in abundance about flowering trees in the forest together with sunbirds and *Dicæidæ.* Ten males average: Length, 114; wing, 55; tail, 40; culmen, 14; tarsus, 15; middle toe with claw, 14.4 Nine females, length, 111; wing, 53.5; tail, 39; culmen, 13.7; tarsus, 14.4 middle toe with claw, 14. Iris light brown; legs and feet pale slaty; bill same color. Breeding in Negros in the month of January." (*Bourns and Worcester MS.*)

620. **ZOSTEROPS GOODFELLOWI** Hartert.

GOODFELLOW'S SILVEREYE.

Zosterops goodfellowi HARTERT, Bull. Brit. Orn. Club (1903), 14, 13; MCGREGOR and WORCESTER, Hand-List (1906), 96; Grant, Ibis (1906), 473.

Mindanao (*Goodfellow*).

Male.—Above olive-green; forehead and line over eye drab; ear-coverts dull green; lores blackish; no white eye-ring; chin and fore throat buffy white; remainder of under parts light green, becoming light sulphur-yellow on middle of breast and abdomen; wing-feathers and rectrices blackish brown edged with olive-green. "Iris reddish brown; bill all plumbeous black; feet and claws pale olive." (*Mearns.*) Length, 158; wing, 72; tail, 56; culmen from base, 16; bill from nostril, 9; tarsus, 20. The male is described from a specimen collected by Mearns.

"*Female.*—Above olive-green, crown and ear-coverts tinged with brown; remiges deep brown with greenish outer edges and pale sulphur-yellow inner margins; tail brown with olive-green outer webs; under side sulphur-yellow; chin and upper throat pale buff; fore neck and sides of breast and abdomen strongly tinged with olive-greenish. No indication of white orbital ring. Wing, 71 to 75; tail, 58; bill from feathers, 12.5; tarsus, 21." (*Hartert.*)

Goodfellow's silvereye is a very distinct species of entirely different coloration from any of the preceding species. It is known only from Mount Apo, Mindanao.

621. **ZOSTEROPS MALINDANGENSIS** (Mearns).

MALINDANG SILVEREYE.

Zosterops goodfellowi malindangensis Mearns, Proc. U. S. Nat. Mus. (1909), 36, 443.

Mindanao (*Mearns*).

"*Characters.*—Smaller than typical *Zosterops goodfellowi,* with stouter bill, front half of head grayish brown instead of olive-green; nape greenish gray instead of olive-green; auricular patch more sharply defined and less greenish; malar region washed with brown instead of being dirty white; throat and upper breast more distinctly washed with brown. The iris is reddish brown in both; bill black in *malindangensis,* plumbeous-black in *goodfellowi;* feet and claws pale olive, yellowish on under side of toes in both." (*Mearns.*)

Genus HYPOCRYPTADIUS Hartert, 1903.

Bill similar to that of *Zosterops,* but somewhat stouter and ridge of culmen rounded; colors very different from *Zosterops;* entire upper parts cinnamon-rufous and no white eye-ring.

The characters of *Hypocryptadius* as given by Hartert follow: "Bill rather higher and comparatively short, the culmen distinctly curved; nasal groove less than one-third of the length of the exposed portion of the culmen; culminal ridge more rounded. Wing as in *Zosterops* (i. e., 'nine primaried'), the first (developed) primary only 5 mm. shorter than the next and at least 1½ cm. longer than the secondaries. Larger than *Zosterops,* coloration different from all *Zosteropidæ.* Sexes alike. Feet very strong, but structurally similar to those of *Zosterops.*"

622. HYPOCRYPTADIUS CINNAMOMEUS Hartert.

CINNAMON HYPOCRYPTADIUS.

Hypocryptadius cinnamomeus HARTERT, Bull. Brit. Orn. Club (1903), 14, 13; McGREGOR and WORCESTER, Hand-List (1906), 96; GRANT, Ibis (1906), 473, pl. 18, fig. 1.

Mindanao (*Goodfellow, Mearns*).

Male.—Above bright cinnamon-rufous; wing-feathers and rectrices blackish brown with most of the outer webs cinnamon-rufous; inner webs of primaries and secondaries cinnamon; under parts buff, tinged with cinnamon on breast, and becoming lilac-gray on lower breast and abdomen, and nearly white on crissum; thighs darker. Wing, 90; tail, 54; culmen from base, 16; bill from nostril, 10; tarsus, 21.

The *female* is similar to the male. This species is known only from Mount Apo, Mindanao.

Family DICÆIDÆ.

Bill short, rather broad at the base; cutting edges of both mandibles finely serrated for at least the distal third; first primary usually wanting; tail short and square. Birds of this family resemble the *Nectariniidæ* and differ from all other Passeriformes in the finely serrated tomia. The species are all small resident birds. Some are brightly marked with red or yellow, while others are plainly colored. They feed about flower or fruit trees or vines in the manner of the sunbirds.

Genera.

- a^1. Bill longer and more slender; width of upper mandible at base not greater, usually much less, than bill from nostril; tail shorter, not extending beyond the toes.
  - b^1. Bill more slender, the terminal half decidedly compressed; outline of gonys nearly straight; culmen from base at least twice the greatest width of upper mandible; short first primary wanting.................... **Dicæum** (p. 622)
  - b^2. Bill stouter, and decidedly broad nearly to the tip; outline of gonys convex; culmen from base less than twice the width of upper mandible. **Prionochilus** (p. 637)
- a^2. Bill shorter and stouter; width of upper mandible at base greater than length of bill from nostril; tail longer, its tip reaching beyond the toes. **Piprisoma** (p. 641)

Genus DICÆUM Cuvier, 1817.

The genus *Dicæum* is distinguished by the slender and sharply pointed bill, by the comparatively short tail, and by always lacking the first primary. The shape of the bill alone is enough to distinguish *Dicæum* from either *Prionochilus* or *Piprisoma,* for while the base of the bill is stout in all three genera, in *Dicæum* its distal portion is much compressed, slender and sharply pointed, and the outline of the gonys is but very slightly convex.

Species.

- a^1. Adults brightly colored with a large area, or at least a stripe, of red, orange, or yellow on under parts.
  - b^1. Bright color of under parts red; no orange on the back; male and female similar in colors.
    - c^1. A red collar on hind neck; chin and throat black with a red spot in center of throat and a red line on middle of abdomen. **retrocinctum** (p. 624)
    - c^2. No red on the upper parts.
      - d^1. Throat white; a red streak on middle of breast and abdomen.
        - e^1. Chest black .... **hæmatostictum** (p. 625)
        - e^2. Chest light gray like the sides and flanks........ **papuense** (p. 626)
      - d^2. Throat and chest red; middle of abdomen black; crissum light yellow.
        - e^1. Larger; wing, 53 to 55 mm.; upper parts with a more steel-green gloss.
          - f^1. Sides of head slaty black; under tail-coverts duller yellow. **luzoniense** (p. 626)
          - f^2. Sides of head glossy greenish black; under tail-coverts brighter yellow .... **apo** (p. 627)
        - e^2. Smaller; wing, 47 mm.; upper parts with more steel-blue gloss. **bonga** (p. 627)
  - b^2. Bright colors of under parts orange or yellow, or both, in males; females much plainer than the males.
    - c^1. Entire breast, abdomen, and crissum yellow, or orange and yellow; in some species the entire under parts yellow.
      - d^1. Under parts entirely bright yellow and orange.
        - e^1. No yellow band on rump.
          - f^1. Fore breast cadmium-orange much brighter than the remaining under parts .... **dorsale** (p. 628)
          - f^2. Fore breast orange in the center not strongly contrasting with the yellow of remaining under parts........ **pallidius** (p. 628)
        - e^2. A bright yellow band on rump........ **xanthopygium** (p. 629)
      - d^2. Under parts not entirely yellow and orange; throat, or throat and chin, gray or blackish slate.
        - e^1. Chin not distinctly yellow; center of breast washed with orange.
          - f^1. Throat decidedly lighter gray.
            - g^1. Smaller; chin and throat faintly washed with yellow; rump faintly washed with olive........ **intermedium** (p. 629)
            - g^2. Larger; chin and throat clear gray; rump with a decided wash of olive-green .... **sibuyanicum** (p. 630)
          - f^2. Throat decidedly darker gray or even blackish slate-color.
            - g^1. Chin and throat ashy gray, lighter than sides of face; rump heavily washed with yellow........ **assimile** (p. 630)
            - g^2. Chin and throat blackish slate, nearly uniform with top and sides of head; rump slightly washed with olive. **sibutuense** (p. 631)
        - e^2. Chin decidedly light yellow in contrast with the gray throat; breast bright orpiment-orange.
          - f^1. Smaller; gray of throat faintly washed with yellow; no olive wash on rump; breast brighter........ **cinereigulare** (p. 631)
          - f^2. Larger; throat gray; rump faintly washed with olive; breast duller orange .... **besti** (p. 632)
    - c^2. Entire under parts white and ashy gray, except a wide stripe of bright cadmium-yellow on middle of breast........ **flaviventer** (p. 632)

- *a*². Adults dull colored, black and white, or at least without red, orange, or bright yellow in any part of the plumage; the sexes alike in colors or similar.
  - *b*¹. Upper parts nearly uniform in color, or the head and mantle, at least, of one color.
    - *c*¹. Smaller; bill from nostril, 7 mm.; wing, 40 to 45.
      - *d*¹. Sides of head and neck ashy or slate-color; rump and tail-coverts washed with yellow .... **pygmæum** (p. 633)
      - *d*². Sides of head and neck black; rump and tail-coverts glossy green like the head and back .... **davao** (p. 634)
    - *c*². Larger; bill from nostril, about 9 mm.; wing, 53 to 55.
      - *d*¹. Under parts white or whitish.
        - *e*¹. Upper parts black with a slight green gloss........ **hypoleucum** (p. 634)
        - *e*². Upper parts dark brown.
          - *f*¹. Above sooty brown washed with olive; below white; fore neck, breast, and flanks washed with ashy........ **mindanense** (p. 635)
          - *f*². Above dark olive-brown; throat and fore neck ashy gray tinged with olive-yellow; breast and abdomen white tinged with yellow. **everetti** (p. 636)
      - *d*². Under parts dull olive-gray; upper parts washed with olive-green. **obscurum** (p. 636)
  - *b*². Upper parts not uniform in color; head, rump, and tail-coverts olive-green; mantle smoky brown........ **nigrilore** (p. 637)

623. DICÆUM RETROCINCTUM Gould.

RED-COLLARED FLOWERPECKER.

Dicæum retrocinctum GOULD, Ann. & Mag. Nat. Hist. (1872), **10**, 114; SHARPE, Cat. Birds Brit. Mus. (1885), **10**, 35; MCGREGOR and WORCESTER, Hand-List (1906), 96.

Luzon (?);* Mindoro (*Steere Exp., Bourns & Worcester, Everett, McGregor*).

Male and female.—Upper parts, including wings and tail, black with a slight blue gloss; a collar of scarlet-vermilion on hind neck; lores dead black; sides of head, chin, throat, and breast dull black with a small scarlet-vermilion patch in center of upper throat on line with the eyes; abdomen, flanks, thighs, crissum, and sides of breast white, mixed with gray on the sides; in the middle of lower breast an oblong scarlet-vermilion patch which is surrounded by black. A male measures: Length, 100; wing, 53; tail, 27; culmen from base, 12; bill from nostril, 8; tarsus, 13.5. A female, wing, 50; tail, 26; culmen from base, 12; bill from nostril, 8.5; tarsus, 14.

"Fairly abundant in Mindoro. Found both in the forest and in the coconut groves. Three males average: Length, 91; wing, 53; tail, 27;

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* Gould's type came from "Manila," its collector is unknown and *Dicæum retrocinctum* has not been found in Luzon by any recent collector. It seems probable that the type was not *collected* in Luzon.

culmen, 13; tarsus, 12.7; middle toe with claw, 13.4. A female, length, 97; wing, 50; tail, 25; culmen, 15; tarsus, 14.4; middle toe with claw, 13. Iris dark reddish brown; bill, legs, feet, and nails black. Breeding in Mindoro in the month of April." (*Bourns and Worcester MS.*)

624. DICÆUM HÆMATOSTICTUM Sharpe.

WHITE-THROATED FLOWERPECKER.

Dicæum hæmatostictum SHARPE, Nature (1876), **14**, 298; Trans. Linn. Soc. 2d. ser. Zool. (1877), **1**, 336; Cat. Birds Brit. Mus. (1885), **10**, 35; GRANT and WHITEHEAD, Ibis (1898), 243, pl. 6, fig. 2 (egg); WHITEHEAD, Ibis (1899), 233 (nest); MCGREGOR and WORCESTER, Hand-List (1906), 96.

Guimaras (*Steere, Steere Exp., Bourns & Worcester*); Negros (*Steere, Everett, Steere Exp., Bourns & Worcester, Keay, Celestino*); Panay (*Steere Exp., Bourns & Worcester*).

Male.—Upper parts, including wings and tail, black with a slight blue gloss; cheeks, sides of head and of neck black; no red on the neck; under parts white; sides and flanks washed with ashy; a slate-black band or patch across fore breast; a broad band of scarlet-vermilion on middle of breast and abdomen. A male from Panay measures: Wing, 53; tail, 29; culmen from base, 11; bill from nostril, 7.5; tarsus, 14.

"*Young.*—Differs from the adult in being slaty gray above, the wings and tail being blacker, with grayish margins to the feathers; under surface of body ashy whitish, washed with yellowish on the abdomen and with grayish on the sides of the body." (*Sharpe.*)

"Found in deep woods, also in coconut groves and about flowering trees in the open. Frequently found feeding side by side with *D. dorsale.* Fourteen males average: Length, 94; wing, 56; tail, 29; culmen, 14; tarsus, 13; middle toe with claw, 14. Thirteen females, length, 93; wing, 53; tail, 27; culmen, 14; tarsus, 13; middle toe with claw, 14. Iris very dark brown; bill, legs, and nails black." (*Bourns and Worcester MS.*)

Whitehead collected one fresh egg of this species at the base of Canlaon Volcano, Negros, on March 19, 1896. It is described as follows: "Shape ovate. Ground-color very pale greenish white, profusely spotted towards the larger end with rather heavy clouded lilac under-markings and olive-brown specks, which are distributed sparingly over the rest of the shell. Measurements 17 mm. by 12 mm. The only nest found was suspended from the end of a branch some distance from the ground." (*Grant and Whitehead.*)

625. **DICÆUM PAPUENSE** (Gmelin).

PHILIPPINE FLOWERPECKER.

Pipra papuensis GMELIN, Syst. Nat. (1788), **1**, pt. 2, 1004.
Dicæum rubriventer LESSON, Traité d' Orn. (1831), 303; SHARPE, Cat. Birds Brit. Mus. (1885), **10**, 36; WHITEHEAD, Ibis (1899), 233 (habits).
Dicæum schistaceum TWEEDDALE, Proc. Zool. Soc. (1878), 111, pl. 8, fig. 1 (young).
Dicæum papuense MCGREGOR and WORCESTER, Hand-List (1906), 96.

Pi-pit pu-ña-la-da, Manila.
Basiao, off Samar (*Bartsch*); Basilan (*Steere Exp., Bourns & Worcester, McGregor*); Bohol (*McGregor*); Camiguin N. (*McGregor*); Cebu (*Everett, Steere Exp., Bourns & Worcester, McGregor*); Dinagat (*Everett*); Leyte (*Whitehead*); Lubang (*McGregor*); Luzon (*Everett, Whitehead, McGregor*); Marinduque (*Steere Exp.*); Masbate (*Bourns & Worcester, McGregor*); Mindanao (*Everett, Steere Exp., Bourns & Worcester, Celestino*); Samar (*Bourns & Worcester, Whitehead*); Ticao (*McGregor*); Verde (*McGregor*).

Male and female.—Above black with a slight slate-blue gloss; lores and ear-coverts black; chin, throat, and crissum white; remainder of under parts cinereous, whitish on middle of lower abdomen; a wide scarlet-vermilion line down center of breast and abdomen. Iris red; bill, legs, and claws black. A male from Basilan measures: Wing, 56; tail, 31; culmen from base, 11; bill from nostril, 7; tarsus, 14. A female from Lubang, wing, 50; tail, 25; culmen from base, 12; bill from nostril, 8; tarsus, 14.

Young.—Upper parts and sides of head and of neck dull smoky brown; under parts dirty cinereous, slightly lighter on throat and tail-coverts.

"The occurrence of this species in Masbate is somewhat surprising. We should naturally expect to find *D. hæmatostictum* there. *D. papuense* is, however, abundant, and *D. hæmatostictum* apparently does not occur. Habits similar to *D. hæmatostictum*, and never occurs in the same island with it so far as known. Eight males average: Length, 93; wing, 56; tail, 29; culmen, 13; tarsus, 13; middle toe with claw, 14. Five females, length, 93; wing, 52; tail, 27; culmen, 13; tarsus, 13; middle toe with claw, 13.4. Bill, legs, feet, and nails black. Breeding in Samar and Mindanao in August; in Cebu in June." (*Bourns and Worcester MS.*)

626. **DICÆUM LUZONIENSE** Grant.

LUZON FLOWERPECKER.

Dicæum luzoniense GRANT, Bull. Brit. Orn. Club (1894), **3**, 1; Ibis (1897), 238; WHITEHEAD, Ibis (1899), 235; MCGREGOR and WORCESTER, Hand-List (1906), 96.

Cu-si-ti, Benguet.
Luzon (*Whitehead, McGregor*).

Adult male.—Upper parts, including exposed edges of wing-feathers and rectrices, glossy steel-green; lores black; sides of head and of neck black slightly glossed with green; chin very pale yellow; throat and chest scarlet-vermilion; breast and abdomen white, washed with pale yellow and with a slaty black line down the middle; sides and flanks olivaceous; thighs black mixed with white; crissum saffron-yellow; rectrices and wing-feathers black; wing-lining white. Iris brown; bill, legs, and nails black. Length, about 95; wing, 56; tail, 29; culmen from base, 10; bill from nostril, 6; tarsus, 12.

"The female resembles the female of *D. ignipectus,* but the top of the head and back are very distinctly glossed with metallic green as in the male, though the gloss is much less pronounced. In some females of *D. ignipectus* the head is slightly glossed, but the back is always olive-green. Length, 86; wing, 46.5; tail, 28; tarsus, 12; culmen, 11.4." (*Grant.*)

Young.—Above mouse-gray washed with olive-green; under parts gray washed with dull olivaceous; abdomen, crissum, and middle of breast washed with light yellow. The first indication of the adult plumage consists of a few red feathers on the throat.

The Luzon flowerpecker is abundant in the mountains of Benguet Province and appears not to occur in the lowlands.

627. DICÆUM APO Hartert.

MOUNT APO FLOWERPECKER.

Dicæum apo HARTERT, Bull. Brit. Orn. Club (1904), 14, 79; MCGREGOR and WORCESTER, Hand-List (1906), 96.

Mindanao (*Waterstradt*).

Diagnosis.—"Differs from *D. luzoniense* Grant in having the sides of the head glossy greenish black, instead of slaty, the vent and under tail-coverts brighter yellow, and the sides of abdomen darker olive-green." (*Hartert.*)

This species is known only from Mount Apo, Mindanao.

628. DICÆUM BONGA Hartert.

SAMAR FLOWERPECKER.

Dicæum luzoniense GRANT, Ibis (1897), 238 (Samar).
Dicæum bonga HARTERT, Bull. Brit. Orn. Club (1904), 14, 80; MCGREGOR and WORCESTER, Hand-List (1906), 96.

Samar (*Whitehead*).

Diagnosis.—"Differs from *D. luzoniense* and *D. apo* in being smaller (wing only 47 mm. instead of 53 to 55 mm.). The sides of the head as dark or even darker than those of *D. apo,* while the upper surface seems to have a more steel-blue gloss." (*Hartert.*)

629. **DICÆUM DORSALE** Sharpe.

SHARPE'S FLOWERPECKER.

Dicæum dorsale SHARPE, Nature (1876), 14, 298; Trans. Linn. Soc. 2d. ser. Zool. (1877), 1, 340; Cat. Birds Brit. Mus. (1885), 10, 40; WHITEHEAD, Ibis (1899), 232; MCGREGOR and WORCESTER, Hand-List (1906), 96.

Masbate (*Steere Exp., Bourns & Worcester, McGregor*); Negros (*Steere Exp., Bourns & Worcester, Whitehead, Celestino*); Panay (*Steere, Steere Exp., Bourns & Worcester*).

Male.—Above dark plumbeous or slate-blue; wing-feathers and rectrices black, edged with slate-blue; a patch of feathers in the middle of upper back orpiment-orange; sides of head and neck slate-blue; lores black; under parts bright lemon-yellow, becoming cadmium-yellow on abdomen and orpiment-orange on breast; inner webs of quills white; axillars and wing-lining white, washed with yellow. Iris light brown; bill and nails black; legs dark slate-blue. A male from Masbate measures: Wing, 50; tail, 23; culmen from base, 12; bill from nostril, 8; tarsus, 13.

"*Female.*—Different from the male; above olive-green, the rump more yellowish; sides of the face uniform with the head; under surface of body bright yellowish; breast and under wing-coverts richer in color. Length, 94; culmen, 12.7; wing, 48; tail, 22.8; tarsus, 14." (*Sharpe.*)

"True *D. dorsale* is confined to Panay, Negros, and Masbate, where it is abundant both about flowering and fruiting trees in the forest, and in coconut groves. Five males average: Length, 89; wing, 49; tail, 24; culmen, 13; tarsus, 12; middle toe with claw, 13. Six females, wing, 48; tail, 24; culmen, 14; tarsus, 12.4; middle toe with claw, 13. Iris very dark brown; bill, legs, feet, and nails black." (*Bourns and Worcester MS.*)

630. **DICÆUM PALLIDIUS** Bourns and Worcester.

PALER FLOWERPECKER.

Dicæum pallidior BOURNS and WORCESTER, Minnesota Acad. Nat. Sci. Occ. Papers (1894), 1, 18; MCGREGOR and WORCESTER, Hand-List (1906), 96.

Cebu (*Everett, Bourns & Worcester, McGregor*).

Male.—Similar to *D. dorsale,* but the upper parts and sides of head and of neck lighter, nearly indigo-blue; feathers of occiput and neck fringed with olivaceous; under parts more uniform in color and the orange of breast less rich. Males with the appearance of maturity have the base of the bill dull yellow. Length, about 90; wing, 50; tail, 25; culmen from base, 11; bill from nostril, 7.5; tarsus, 14.

Female.—Above olive-green; below tea-green; chin, middle of breast and of abdomen, and crissum bright lemon-yellow. Wing, 48; tail, 22; culmen from base, 12; bill from nostril, 8; tarsus, 13.

"Measurements of eleven males: Length, 89; culmen, 14; wing, 49; tail, 26; tarsus, 13. Of four females: Length, 84; wing, 48; tail, 25; tarsus, 12." (*Bourns and Worcester.*)

"Iris brown; legs, feet, and nails dark brown; bill black. Breeding in July." (*Bourns and Worcester MS.*)

631. DICÆUM XANTHOPYGIUM Tweeddale.

YELLOW-RUMPED FLOWERPECKER.

Dicæum xanthopygium TWEEDDALE, Ann. & Mag. Nat Hist. (1877), **20**, 95; Proc. Zool. Soc. (1877), 698, pl. 73, fig. 1; SHARPE, Cat. Birds Brit. Mus. (1885), **10**, 40; GRANT, Ibis (1895), 454 (critical notes); WHITEHEAD, Ibis (1899), 234; MCGREGOR and WORCESTER, Hand-List (1906), 97.

Luzon (*Everett, Whitehead*); Marinduque (*Steere Exp.?*)* Mindoro (*Steere Exp., Bourns & Worcester, McGregor*); Polillo (*McGregor*).

Male.—Rump bright lemon-yellow, otherwise scarcely different from the male of *D. dorsale.* A male from Mindoro measures: Wing, 47; tail, 19; culmen from base, 10; bill from nostril, 7; tarsus, 11.

Female.—Rump pale lemon-yellow, otherwise similar to the female of *D. dorsale.* A female from Mindoro, wing, 46; tail, 20; culmen from base, 10; bill from nostril, 6; tarsus, 11.

"Two males average: Length, 82; wing, 47; tail, 21; culmen, 13; tarsus, 12; middle toe with claw, 13. Iris dark brown; bill, legs, feet, and nails black." (*Bourns and Worcester MS.*)

632. DICÆUM INTERMEDIUM Bourns and Worcester.

INTERMEDIATE FLOWERPECKER.

Dicæum intermedium BOURNS and WORCESTER, Minnesota Acad. Nat. Sci. Occ. Papers (1894), **1**, 19; MCGREGOR, Phil. Jour. Sci. (1906), **1**, 775; MCGREGOR and WORCESTER, Hand-List (1906), 96.

Romblon (*Bourns & Worcester, McGregor*); Tablas (*Bourns & Worcester, Celestino*).

Male.—Upper parts, including sides of head and of neck, and exposed edges of wing-feathers and rectrices slate-blue, or dark indigo-blue; patch on center of back orpiment-orange; rump faintly washed with olive-green; lores black; chin and throat light ashy gray faintly and uniformly washed with pale yellow; remainder of under parts bright yellow inclining to orange on middle of breast. Iris brown; bill, legs, and nails black. Wing, 51; tail, 25; culmen from base, 11; bill from nostril, 9; tarsus, 14.

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* Steere did not record this species from Marinduque, but in Bourns and Worcester's MS. notes I find the remark: "Doubtless also Marinduque." Cf. also Worcester and Bourns, Distribution List, *Proc. U. S. Nat. Mus.* Washington (1898), **20**, 560, no. 361.

Female.—Above mouse-gray faintly washed with dull olive-green; below tea-green, becoming pale yellow on middle of breast and abdomen and on crissum. Base of bill whitish. Wing, 51; tail, 24; culmen from base, 12; bill from nostril, 8.5; tarsus, 14.

"Four males average: Length, 94; wing, 52; tail, 26.5; culmen, 14; tarsus, 13; middle toe with claw, 15. Three females, length, 92; wing, 49; tail, 26; culmen, 14; tarsus, 13; middle toe with claw, 14. Iris dark brown; legs, feet, and nails dark brown; bill brown to black, yellowish at base." (*Bourns and Worcester MS.*)

633. **DICÆUM SIBUYANICUM** Bourns and Worcester.

SIBUYAN FLOWERPECKER.

Dicæum sibuyanicum Bourns and Worcester, Minnesota Acad. Nat. Sci. Occ. Papers (1894), 1, 18; McGregor, Bur. Govt. Laboratories (1905), 25, 18; McGregor and Worcester, Hand-List (1906), 96.

Sibuyan (*Bourns & Worcester, McGregor*).

Male.—Similar to the male of *D. intermedium,* but the rump more heavily washed with olive-green; chin and throat clear ashy gray without the yellow wash. Iris brown; bill black; legs and nails dark steel-blue. Wing, 56; tail, 26; culmen from base, 14; bill from nostril, 9; tarsus, 14.

Female.—Similar to the female of *D. intermedium.* Wing, 52; tail, 24; culmen from base, 13; bill from nostril, 9; tarsus, 14.

"Average measurements from nine males: Length, 99; culmen, 15; wing, 53; tail, 26; tarsus, 13. From two females: Length, 97; culmen, 15; wing, 50; tail, 24.6; tarsus, 14." (*Bourns and Worcester.*)

634. **DICÆUM ASSIMILE** Bourns and Worcester.

SULU FLOWERPECKER.

Dicæum assimilis Bourns and Worcester, Minnesota Acad. Nat. Sci. Occ. Papers (1894), 1, 19; McGregor and Worcester, Hand-List (1906), 96.

Sulu (*Bourns & Worcester*); Tawi Tawi (*Bourns & Worcester*).

"*Adult male.*—Above exactly like *D. sibutense,* but chin, throat, and fore breast very much lighter than sides of face, being clear ashy gray, as in *D. trigonostigma.* As Dr. Sharpe expressly states that this is not the case in *S. sibutense,* but that the latter species has the throat like the sides of the face and head, it is evident that the Sulu and Tawi Tawi (?) birds belong to a distinct species having the back of *D. sibutense* and the under surface of *D. trigonostigma.*

"*Adult female* like that of *D. sibutense,* but with the throat, upper breast, and sides of face light ashy gray, uniformly washed with yellow. The plate in Ibis seems to show a faint orange mark on the back of the female of *D. sibutense,* though no such marking is described in the text. If this is the case, the female of *D. sibutense* differs from that of every other Philippine representative of the genus.

"A male from Sulu measures 89 in length; culmen, 13; wing, 52; tail, 24.6; tarsus, 13.4. Two females from the same locality measure 84 in length; culmen, 12.7; wing, 50; tail, 24.6; tarsus, 12. We have only females from Tawi Tawi and can not be quite sure of the identification." (*Bourns and Worcester.*)

635. DICÆUM SIBUTUENSE Sharpe.

SIBUTU FLOWERPECKER.

Dicæum sibutuense Sharpe, Bull. Brit. Orn. Club (1893), 3, no. 12, 10; Ibis (1894), 251, pl. 7, figs. 1 and 2; McGregor and Worcester, Hand-List (1906), 97.

Sibutu (*Everett*).

"This is an interesting species, new to science. Like *D. trigonostigma,* it has a slate-colored throat, but the latter is blackish slate-color, like the sides of the face and head, and not lighter gray as in *D. trigonostigma.* The Sibutu bird, moreover, resembles *D. dorsale* in having an orange patch in the center of the back, the lower back and rump being slaty gray, slightly washed with olive, and not orange-yellow as in *D. trigonostigma.* The female, as might be expected, closely resembles that of *D. trigonostigma,* but is tinted with olive-green on the rump, and has not the orange shade of the hen of the last-named species." (*Sharpe.*)*

The figure of the female of *D. sibutuense* in The Ibis has a pale yellow patch on the back, a character which is found in no other Philippine species of the genus.

636. DICÆUM CINEREIGULARE Tweeddale.

ASHY-CHINNED FLOWERPECKER.

Dicæum cinereigulare Tweeddale, Proc. Zool. Soc. (1877), 829; Sharpe, Cat. Birds Brit. Mus. (1885), 10, 40; Grant and Whitehead, Ibis (1898), 243 (eggs); Whitehead, Ibis (1899), 234 (nest); McGregor and Worcester, Hand-List (1906), 97.

Bohol (*McGregor*); Leyte (*Steere Exp., Whitehead*); Mindanao (*Everett, Bourns & Worcester, Celestino*); Samar (*Steere Exp., Bourns & Worcester, Whitehead*).

Male.—Somewhat similar to *D. intermedium,* the rump slate-blue like the back; chin lemon-yellow; throat lightly washed with yellow; entire breast orpiment-orange. Bill, legs, and nails black. A male from Bohol measures: Length, 89; wing, 48; tail, 23; culmen from base, 11.5; bill from nostril, 8; tarsus, 12.5.

Female.—Above mouse-gray; rump washed with olive-green; lores blackish; cheeks, line around eye, and a narrow frontal band washed with yellow; chin light yellow; under parts ashy gray, washed with yellow on sides and flanks, and with a band of yellow down middle of breast and abdomen; under tail-coverts yellow. A female from Bohol, wing, 47; tail, 21; culmen from base, 10; bill from nostril, 7; tarsus, 12.

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* Sharpe's original diagnosis of *Dicæum sibutuense* is as follows: "*D.* simile, *D. trigonostigmati,* sed gutture saturate schistaceo, macula dorsale aurantiaca distinguendum. Long. tot. 3.2 poll., culm. 0.45, alæ 2.0, caudæ 0.85, tarsi 0.5."

"Five males average: Length, 86; wing, 49; tail, 23.6; culmen, 12; tarsus, 12; middle toe with claw, 12. Two females, length, 82.5; wing, 45; tail, 20.5; culmen, 12.7; tarsus, 11; middle toe with claw, 12. Iris dark brown; bill, legs, feet, and nails black. Breeding in Samar in August." (*Bourns and Worcester MS.*)

Three sets of eggs of this flowerpecker were collected by Whitehead near Paranas, Samar, in July, 1896. These eggs are described as rather long, ovate in shape, pure white, and measuring 15 mm. by 12 mm.

"Nest round, pocket-shaped, with the entrance at the side, suspended from slender boughs or to the stem of a large leaf. The outside of the nest is made of green moss bound together with spider's webs, the inside lined with the dark brown down stripped from the young fern-fronds. A favorite site is a neglected native clearing some distance from the forest." (*Grant and Whitehead.*)

637. **DICÆUM BESTI** Steere.

BEST'S FLOWERPECKER.

Dicæum besti STEERE, List Birds & Mams. Steere Exped. (1890), 22; McGREGOR and WORCESTER, Hand-List (1906), 97.

Pis-pis, Siquijor.

Siquijor (*Steere Exp., Bourns & Worcester, Celestino*).

Male.—Similar to the male of *D. cinereigulare*, but the throat clear ashy gray, not washed with yellow; rump with a slightly yellow wash. Wing, 52; tail, 27; culmen from base, 13; bill from nostril, 9; tarsus, 14.

Female.—Plumbeous above; rump, tail-coverts, and center of back greenish yellow; chin pale yellow; throat and chest ashy gray; middle of breast and of abdomen and tail-coverts rich lemon-yellow; sides and flanks ashy gray, washed with tea-green; primaries edged with cinereous. Wing, 50; tail, 25; culmen from base, 12; bill from nostril, 8; tarsus, 13.

"Eighteen males average: Length, 142; wing, 52; tail, 26; culmen, 14; tarsus, 13; middle toe with claw, 14. Fifteen females, length, 140; wing, 50; tail, 25; culmen, 14; tarsus, 12.7; middle toe with claw, 13. Legs, feet, nails, and bill black. Breeding in February." (*Bourns and Worcester MS.*)

638. **DICÆUM FLAVIVENTER** Meyer.

YELLOW-BELLIED FLOWERPECKER.

Dicæum flaviventer MEYER, Jour. für Ornith. (1894), 91; McGREGOR and WORCESTER, Hand-List (1906), 96.

Cebu (*Burger*).

Description.—Head, upper back, and wing-coverts greenish black, with somewhat of a luster; wing-quills blackish brown; secondaries with glossy greenish borders to the outer webs; lower back and tail-coverts dark slate-color; tail black; front and sides of throat white, lower throat and chest as well as sides of lower body light ash-gray; at the middle of the latter a beautiful cadmium-yellow stripe, up to 6 mm. wide (Ridgway cadmium-yellow, pl. VI, 6), becoming white toward vent; under tail-coverts, axillars, and under wing-coverts white, outer ones with a blackish spot in the middle; thighs externally white, blackish behind; feet brown; bill black, strong.*

639. **DICÆUM PYGMÆUM** (Kittlitz).

PYGMY FLOWERPECKER.

Nectarinia pygmæum KITTLITZ, Mem. pres. Acad. St. Petersb. (1833), **2**, pts. 1, 2, pl. 2.

Dicæum pygmæum SHARPE, Cat. Birds Brit. Mus. (1885), **10**, 43; WHITEHEAD, Ibis (1899), 234 (distribution, nest); MCGREGOR and WORCESTER, Hand-List (1906), 97.

Pi-pít dá-po, Manila.

Balabac (*Everett*); Bohol (*McGregor*); Calayan (*McGregor*); Fuga (*McGregor*); Guimaras (*Meyer*); Leyte (*Everett, Whitehead*); Lubang (*McGregor*); Luzon (*Meyer, Everett, Steere Exp., Whitehead, McGregor*); Maestre de Campo (*McGregor & Worcester*); Masbate (*Bourns & Worcester, McGregor, Bartsch*); Mindoro (*Steere Exp., Everett, McGregor*); Negros (*Steere Exp.*); Palawan (*Everett, Whitehead, Platen, Steere Exp., Bourns & Worcester, Celestino,* White*); Polillo (*McGregor*); Romblon (*McGregor*); Samar (*Bourns & Worcester*); Semirara (*McGregor & Worcester*); Sibuyan (*Bourns & Worcester*); Siquijor (*Bourns & Worcester, Celestino*); Ticao (*McGregor*).

Male.—Above glossy steel-green heavily washed with yellow on lower back, rump, and tail-coverts; lores blackish; sides of head, of throat, and of breast dark cinereous; middle of chin, throat, and chest white faintly washed with yellow and interrupted in the middle of breast by a cinereous patch; middle of abdomen and tail-coverts light buff; sides and flanks olive-green; rectrices black, edged with metallic green; wings black; secondaries and greater coverts edged with olive-yellow; alula, lesser coverts, and median coverts edged with glossy green. A male from Cebu measures: Wing. 46; tail, 23; culmen from base, 10; bill from nostril, 6.5; tarsus, 11.

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* The original diagnosis and description of *Dicæum flaviventer*, from which the above description is taken, are as follows:

"*Dicæum D. rubriventri* Less. similis, sed parte media pectoris abdominisque cadmiumino-flava, capite supra dorsoque virescentibus et uropygio obscure ardesiaco distinguendum.

"Long. al. 55, caud. 30, tars. 12, culm. 10.5 mm. (♂).

"Hab. Insula Philippinarum Cebú.

"Kopf, Oberrücken und Flügeldecken grünlich schwarz mit etwas Glanz. Schwingen schwärzlichbraunn, die Secundaren mit grünlich glänzenden Rändern auf der Aussenfahne. Unterrücken und schwanzdecken dunkel schieferfarbig. Schwanz schwarz. Kehle vorn und an den Seiten weiss, untere Kehle und Brust, sowie die Seiten des Unterkörpers hell aschgrau, in der Mitte desselben ein schöner cadmiumgelber, bis 6 mm breiter Streif (Ridgway: cadmium-yellow Pl. VI, 6), nach dem After zu in Weiss ubergehend; untere Schwanzdecken, Axillaren und untere Flügeldecken weiss, die äusseren mit einem schwärzlichen Fleck in der Mitte. Hosen aussen weiss, hinten terminal schwärzlich. Füsse braun. Schnabel schwarz, kräftig."

* Celestino's specimens were recorded by mistake as *Dicæum papuense*, *Phil. Jour. Sci.* (1906), **1**, 907.

Female.—Above somewhat similar to the male, but lighter and greener and with less metallic gloss; wing-feathers edged with olive-yellow; all the under parts lighter and paler than in the male. A female from Cebu, wing, 43; tail, 21; culmen from base, 10; bill from nostril, 7; tarsus, 11.

"The pygmy flowerpecker is the smallest and most widely distributed of Philippine *Dicæidæ*. Invariably found by us in the deep woods. A very fearless bird. Iris dark brown; legs, feet, and nails dark brown to coal-black; bill black, except base of lower mandible, which is yellowish to gray. Breeding in Palawan in December and in Samar in July. Four males average: Length, 92; wing, 46; tail, 25; culmen, 13; tarsus, 12; middle toe with claw, 12. Three females, length, 83.5; wing, 45; tail, 24.6; culmen, 13; tarsus, 12; middle toe with claw, 12." (*Bourns and Worcester MS.*)

640. DICÆUM DAVAO Mearns.

DAVAO FLOWERPECKER.

Dicæum davao MEARNS, Proc. Biol. Soc. Wash. (1905), 18, 87; McGREGOR and WORCESTER, Hand-List (1906), 96.

Mindanao (*Mearns, Celestino*).

Male.—Above, including the edges of wing-feathers and of rectrices, glossy steel-green; lores, sides of head and of neck black; chin and middle of throat white faintly washed with yellow and interrupted by a black patch on breast; (sides of breast black;) sides of abdomen and flanks olive-yellow; under tail-coverts and middle of lower abdomen light buff-yellow; axillars and wing-lining white; edge of wing black. A male from northern Mindanao measures: Wing, 44; tail, 21; culmen from base, 10; bill from nostril, 7; tarsus, 10. The *female* is unknown.

641. DICÆUM HYPOLEUCUM Sharpe.

WHITE-BELLIED FLOWERPECKER.

Dicæum hypoleucum SHARPE, Nature (1876), 24, 298; Cat. Birds Brit. Mus. (1885), 10, 37; McGREGOR and WORCESTER, Hand-List (1906), 97.

Basilan (*Steere, Everett, Steere Exp., Bourns & Worcester, McGregor*); Bongao (*Everett*); Siasi (*Everett*); Sulu (*Guillemard*).

Male.—Upper parts, including sides of head and of neck deep black; under parts white; wing-lining and axillars white. A male from Basilan measures: Wing, 53; tail, 24; culmen from base, 13; bill from nostril, 9; tarsus, 13.

Female.—Above mouse-gray faintly washed with olive-green except on tail-coverts where the green is heavier; secondaries and greater coverts edged with olive-green; under parts white. Wing, 50; tail, 24; culmen from base, 13; bill from nostril, 9; tarsus, 13.

"Found by us in the deep woods. Stated by Guillemard to frequent coconut groves. Three males average: Length, 89; wing, 53; tail, 27; tarsus, 12; middle toe with claw, 12.7. Iris reddish brown; bill, legs, feet, and nails black." (*Bourns and Worcester MS.*)

642. **DICÆUM MINDANENSE** Tweeddale.

MINDANAO FLOWERPECKER.

Dicæum mindanense TWEEDDALE, Proc. Zool. Soc. (1877), 547; Challenger Report, Zool. (1881), **2**, pt. 8, pl. 5, fig. 1; SHARPE, Cat. Birds Brit. Mus. (1885), **10**, 37; MCGREGOR and WORCESTER, Hand-List (1906), 97.

Basilan (*Bourns & Worcester*); Mindanao (*Murray*); Sulu (*Bourns & Worcester*); Tawi Tawi (*Bourns & Worcester*).

"*Adult male* (*type of species*).—General color above sooty brown, washed with olive, grayer on the rump, the head washed with a little yellower olive; lesser wing-coverts like the back; remainder of wing-coverts, bastard-wing, primary-coverts, and quills dark brown, externally edged with olive; upper tail-coverts washed with light olive; tail-feathers blackish, edged with olive, with a narrow white fringe at the end of the inner web of the three outermost feathers; lores, feathers round the eye, sides of face, ear-coverts, and cheeks sooty black; throat and under surface of body white, washed with ashy on the fore neck, breast, and flanks; under tail-coverts white, with an olive-yellow tinge; under wing-coverts and axillars white, with a slight tinge of yellow; edge of wing sooty brown; quills dusky below, white along the edge of the inner web. Length, 81; culmen, 14; wing, 48.2; tail, 25.4; tarsus, 12.7." (*Sharpe.*)

"So far as we can judge from the figure in The Ibis, Dr. Sharpe has confused *D. mindanense* with *D. hypoleucum*. The two species occur together in Basilan and Sulu, and probably also in Tawi Tawi. Seven males average: Length, 90; wing, 52; tail, 26.6; culmen, 14; tarsus, 13; middle toe with claw, 13. Eight females, length, 87.6; wing, 50; tail, 24; culmen, 14.4; tarsus, 12.7; middle toe with claw, 13. Iris brown; bill, legs, feet, and nails black. Breeding in Basilan in the month of September." (*Bourns and Worcester MS.*)

643. DICÆUM EVERETTI Tweeddale.

EVERETT'S FLOWERPECKER.

Dicæum everetti Tweeddale, Ann. & Mag. Nat. Hist. (1877), **20**, 537; Proc. Zool. Soc. (1878), 111, pl. 8, fig. 2; Sharpe, Cat. Birds Brit. Mus. (1885), **10**, 47; Whitehead, Ibis (1899), 234 (nest); McGregor and Worcester, Hand-List (1906), 97.
Dicæum modestum Tweeddale, Proc. Zool. Soc. (1878), 380.

Bohol (*McGregor*); Dinagat (*Everett*); Leyte (*Whitehead*); Panaon (*Everett*); Samar (*Steere Exp., Bourns & Worcester, Whitehead*).

"*Adult male* (*type of D. modestum*).—General color above dark olive-brown, the head uniform with the back; lesser and median wing-coverts like the back; bastard-wing and primary-coverts uniform dark brown; greater wing-coverts and quills dark brown, edged yith yellowish olive, more distinct on the secondaries; upper tail-coverts brown, washed with olive; tail black; lores, sides of face, and ear-coverts dusky olive-brown, the cheeks lighter olive-ashy; throat and fore neck ashy gray, olive-yellow on the chin, a tinge of the latter color also pervading the throat; breast and abdomen pale whitish tinged with yellow; sides of body, flanks, and under tail-coverts pale olive-greenish; under wing-coverts and axillars white, with a faint tinge of yellow; quills dusky brown below, ashy whitish along the edge of the inner web. Length, 80; culmen, 11.4; wing, 48; tail, 24; tarsus, 12.7 (Mus. R. G. Wardlaw Ramsay.)

"*Observation.*—I have compared the types of *D. modestum* and *D. everetti* in Capt. Wardlaw Ramsay's collection, and can not find any specific difference between them." (*Sharpe.*)

"Quite common in Samar, and so far as our observation goes, a strictly deep woods bird. A male measures: Length, 89; wing, 50; tail, 24; culmen, 11; tarsus, 13; middle toe with claw, 13. Two females, length, 84; wing, 46; tail, 22.6; culmen, 12.7; tarsus, 11.6; middle toe with claw, 12. Iris brown; legs, feet, and nails dark brown; bill black." (*Bourns and Worcester MS.*)

644. DICÆUM OBSCURUM Grant.

DUSKY FLOWERPECKER.

Dicæum obscurum Grant, Bull. Brit. Orn. Club (1894), **3**, 50; Ibis (1894), 515; Whitehead, Ibis (1899), 234 (feeding habits); McGregor and Worcester, Hand-List (1906), 97.

Luzon (*Whitehead, McGregor*).

Male and female.—Above olive-brown, with a wash of green on rump and tail-coverts; wing-feathers and rectrices blackish brown, edged with olive-green; inner webs of quills edged with white; under parts gray, washed with sage-green and with a light streak on middle of breast and of abdomen. Iris light brown; upper mandible dark brown; lower mandible light brown; legs and nails about the same color as lower mandible. Length, 88 to 96. A male measures: Wing, 54; tail, 27; culmen from base, 12.5; bill from nostril, 9; tarsus, 15. A female, wing, 51; tail, 24; culmen from base, 13; bill from nostril, 9; tarsus, 15.

This neutral-colored flowerpecker, which appears to be confined to the mountains of Luzon, is difficult to describe, but it may be easily recognized by its dull coloration.

645. **DICÆUM NIGRILORE** Hartert.

BLACK-LORED FLOWERPECKER.

Dicæum nigrilore HARTERT, Bull. Brit. Orn. Club (1904), 15, 8; MCGREGOR and WORCESTER, Hand-List (1906), 97.

Mindanao (*Waterstradt, Mearns*).

Male and female.—Head, nape, and ear-coverts greenish yellow; lores and a line under eye and ear-coverts blackish; mantle and sides of neck sepia-brown; lower back, rump, and tail-coverts greenish yellow; chin, fore part of throat, abdomen, and middle of breast white; throat and breast ash-gray; flanks and crissum bright yellow; wings and tail blackish brown; primaries edged with white; the other feathers edged with greenish yellow. A female measures: Wing, 52; tail, 27; culmen from base, 14; bill from nostril, 10; tarsus, 14.

This is a very distinct species which is found only in the mountains of Mindanao.

Genus PRIONOCHILUS Strickland, 1841.

Bill short and stout, very wide at base; gonys decidedly convex; first primary less than one-half the second or wanting. The Philippine species that are usually placed in this genus are not uniform in generic characters. *P. johannæ* has a short first primary and a moderately stout bill; it resembles *P. ignicapillus* and is probably a typical *Prionochilus*. *P. olivaceous* has a short first primary and the bill somewhat stouter than *P. johannæ*. *Prionochilus quadricolor, P. bicolor,* and *P. inexpectatus* resemble one another in having the bill short and very stout and the true first primary absent.

Species.

a^1. Under parts red and yellow .... **johannæ** (p. 638)
a^2. Under parts white, or white and gray.
  b^1. Mantle bright red .... **quadricolor** (p. 638)
  b^2. Mantle not red.
    c^1. Entire upper parts glossy blue-black.
      d^1. Under parts entirely white .... **bicolor** (p. 640)
      d^2. Under parts mostly light gray; chin, throat, and middle of breast and of abdomen white .... **inexpectatus** (p. 640)
    c^2. Entire upper parts olive-yellow .... **olivaceus** (p. 639)

646. PRIONOCHILUS JOHANNÆ Sharpe.

PALAWAN FLOWERPECKER.

Prionochilus johannæ SHARPE, Ibis (1888), 201, pl. 4, fig. 1; MCGREGOR and WORCESTER, Hand-List (1906), 97.

Balabac (*Everett*); Calamianes (*Bourns & Worcester*); Palawan (*Steere, Everett, Whitehead, Platen, Steere Exp., Bourns & Worcester, McGregor, Celestino, White*).

Male.—Upper parts slate-blue; center of crown scarlet; rump lemon-yellow; wing-feathers and rectrices black, edged with slate-blue; lores black; sides of head, of neck, and of breast slate-blue; a white included line on jaw; under parts rich lemon-yellow, fading to white on thighs and crissum; a scarlet patch on center of chest; axillars, wing-lining, edge of wing, and inner webs of quills white. A male measures: Wing, 52; tail, 25; culmen from base, 12; bill from nostril, 7.5; greatest width of upper mandible, 6; tarsus, 14.

Female.—Upper parts including exposed edges of wing-feathers and rectrices olivaceous; band on tail-coverts lemon-yellow; center of crown with a dull yellow patch; sides of head and neck gray, washed with olivaceous; jaw with an obscure cinereous streak; chin and throat white, washed with yellow; breast and abdomen lemon-yellow, lighter posteriorly; sides and flanks gray, washed with greenish yellow; crissum white. Wing, 48; tail, 24; culmen from base, 11; bill from nostril, 7; tarsus, 14.

"Abundant both in Palawan and the Calamianes Islands. Found about fruit trees in or near the woods. Eleven males average: Length, 93; wing, 53; tail, 28; culmen, 12.7; tarsus, 13.7; middle toe with claw, 13.7. Ten females, length, 92; wing, 50; tail, 26; tarsus, 13.4; middle toe with claw, 14; culmen, 13. Specimens from the Calamianes average very slightly smaller. Legs, feet, and nails black; bill black except base of lower mandible, which is yellow or gray." (*Bourns and Worcester MS.*)

647. PRIONOCHILUS QUADRICOLOR Tweeddale.

FOUR-COLORED FLOWERPECKER.

Prionochilus quadricolor TWEEDDALE, Proc. Zool. Soc. (1877), 762, pl. 77, fig. 2; SHARPE, Cat. Birds Brit. Mus. (1885), **10**, 70; BOURNS and WORCESTER, Minnesota Acad. Nat. Sci. Occ. Papers (1894), **1**, 57 (description of female and young); MCGREGOR, Phil. Jour. Sci. (1907), **2**, sec. A, 308.

Prionochilus quidricolor MCGREGOR and WORCESTER, Hand-List (1906), 97 (error).

Cebu (*Everett, Bourns & Worcester, McGregor*).

Male.—A large triangular mantle-patch scarlet-vermilion, the black bases of the feathers showing somewhat; lower back ochraceous tinged with green; remainder of upper parts, including sides of head and neck, wings, and tail, glossy blue-black; under parts cinereous; chin, a narrow line on middle of breast, center of abdomen, crissum, thighs, axillars, wing-lining, and inner webs of quills white; flanks washed with light olive. Length, 90; wing, 53; tail, 25; culmen from base, 10; bill from nostril, 6; greatest width of bill, 7; tarsus, 14.

"*Adult female.*—Above brown, head faintly washed with olive; back, wing-coverts, and outer webs of secondaries heavily washed with olive-yellow, rump almost entirely of the latter color; entire under surface grayish white faintly tinged with olive-yellow, lighter along center of breast and abdomen; under wing-coverts, axillars, and inner webs of quills pure white.

"*Young male.*—Like female but lacks yellow wash on outer webs of secondaries, the wing and tail being black as in adult male." (*Bourns and Worcester.*)

"The locality Panaon, assigned to this species in the Catalogue of Birds, is a manifest error. The type specimen, an unsexed bird which was rightly supposed to be a male, was obtained in Cebu by Everett. No additional specimen seems to have been secured until 1892, when we again found it in Cebu. Ten males average as follows: Length, 90; wing, 52; tail, 26; culmen, 11.4; tarsus, 13.4; middle toe with claw, 13.7. Six females, length, 89; wing, 52; tail, 25; culmen, 11.6; tarsus, 13.4; middle toe with claw, 14. Iris chocolate-brown; bill, legs, feet, and nails black. Breeding in June. Food fruit." (*Bourns and Worcester MS.*)

648. PRIONOCHILŬS OLIVACEUS Tweeddale.

OLIVACEOUS FLOWERPECKER.

Prionochilus olivaceus TWEEDDALE, Ann. & Mag. Nat. Hist. (1877), **20**, 536; Proc. Zool. Soc. (1878), 111, pl. 8, fig. 3; SHARPE, Cat. Birds Brit. Mus. (1885), **10**, 75; WHITEHEAD, Ibis (1899), 235; MCGREGOR and WORCESTER, Hand-List (1906), 97.

Basilan (*Steere Exp.*, *Bourns & Worcester*, *McGregor*); Bohol (*McGregor*); Dinagat (*Everett*); Leyte (*Whitehead*); Mindanao (*Platen*); Samar (*Whitehead*).

Male.—Above bright olive-green; wing-feathers and rectrices olive-brown, edged with olive-green; lores white; under parts smoke-gray; chin, a broad median line on throat, breast, and abdomen white, sides of abdomen and flanks streaked with white; thighs smoke-gray mixed with white; crissum white faintly washed with yellow; axillars and wing-lining white. Length, about 100. A male from Basilan measures: Wing, 56; tail, 26; culmen from base, 10; bill from nostril, 6.5; greatest width of bill, 6.5; tarsus, 15.

Female.—Similar to the male, but with the gray of under parts more ashy. A female from Basilan, wing, 51; tail, 25; culmen from base, 10; bill from nostril, 6.5; tarsus, 13.

"Found in the forest and second growth. Never seen about open fields. Feeds on seeds and fruits. Breeding in Basilan in August. Four males from Basilan average: Length, 97; wing, 56; tail, 29; culmen, 12.7; tarsus, 12.9; middle toe with claw, 14.7. Iris brownish red; legs, feet, and nails brown to black; bill black except base of lower mandible, which is ashy gray." (*Bourns and Worcester MS.*)

649. PRIONOCHILUS BICOLOR Bourns and Worcester.

BICOLORED FLOWERPECKER.

Prionochilus bicolor BOURNS and WORCESTER, Minnesota Acad. Nat. Sci. Occ. Papers (1894), 1, 20; MCGREGOR and WORCESTER, Hand-List (1906), 97.

Mindanao (*Bourns & Worcester*).

"*Adult male.*—Entire upper surface deep black, with faint metallic blue gloss; entire under surface, including under wing-coverts, axillars, and inner webs of quills, white; bases of feathers of breast, flanks, and abdomen slaty black. Bill, legs, and feet black; iris red. Length, 82.5; wing, 50; tail, 24; culmen, 10.6; tarsus, 14. Found in the hills of Ayala, near Zamboanga." (*Bourns and Worcester.*)

650. PRIONOCHILUS INEXPECTATUS Hartert.

HARTERT'S FLOWERPECKER.

Prionochilus inexpectatus HARTERT, Novit. Zool. (1895), 2, 64 and 486; GRANT, Ibis (1896), 533, (1897), 240; MCGREGOR and WORCESTER, Hand-List (1906), 97.
Brionochilus bicolor WHITEHEAD, Ibis (1899), 235.

Bohol (*McGregor*); Leyte (*Whitehead*); Luzon (*Everett, Whitehead, McGregor*); Mindoro (*Bourns & Worcester, Everett, McGregor*); Negros (*Whitehead*); Samar (*Whitehead*).

Male.—Above glossy blue-black; breast, sides, and flanks cinereous; chin, throat, median line of breast and abdomen, crissum, wing-lining, axillars, and inner webs of quills white. Bill, legs, and nails black. A male from Mindoro measures: Length, 90; wing, 49; tail, 23; culmen from base, 9; bill from nostril, 6; greatest width of bill, 6; tarsus, 10.

Female.—Above brown, washed with olive-green, brightest on rump, tail-coverts, and outer webs of secondaries; below similar to the male, but with a faint olivaceous wash. Wing, 51; tail, 25; culmen from base, 9; bill from nostril, 5.5; tarsus, 13.

"This recently-described species has now been met with in Samar and Leyte. It seems more than probable that it is not really distinct from *P. bicolor* Bourns and Worcester; but having no typical specimens of the latter form from Mindanao, I can not be certain." (*Grant.*)

Genus PIPRISOMA Blyth, 1844.

Bill very short and stout, its greatest width considerably more than bill from nostril; gonys strongly convex; wing long and pointed; first (outermost) primary wanting; second, third, and fourth primaries subequal and longest; tail extending beyond the end of middle toe. Upper parts light brown; breast and abdomen white, streaked with brown.

651. PIPRISOMA ÆRUGINOSUM (Bourns and Worcester).

RUSTY FLOWERPECKER.

Prionochilus æruginosus Bourns and Worcester, Minnesota Acad. Nat. Sci. Occ. Papers (1894), 1, 20.

Piprisoma æruginosum Grant, Ibis (1895), 454; Whitehead, Ibis (1899), 235; McGregor and Worcester, Hand-List (1906), 98.

Cebu (*Bourns & Worcester*); Lubang (*McGregor*); Luzon (*Whitehead, McGregor*); Mindanao (*Bourns & Worcester*); Mindoro (*Everett*); Romblon (*McGregor*); Sibuyan (*McGregor*).

Adult (*sexes alike*).—Above dark hair-brown, faintly washed with olive; rump and tail-coverts olivaceous; wing-feathers and rectrices blackish brown, edged with olivaceous; two outer pairs of rectrices tipped with white on inner webs; lores whitish; white malar line separated from throat by a hair-brown line; under parts white; breast, sides of throat and of abdomen, and flanks boldly streaked with hair-brown; under tail-coverts white with median, basal, brown markings. A male from Luzon measures: Wing, 66; tail, 37; culmen from base, 9; bill from nostril, 6; greatest width of bill, 6; tarsus, 14. A female from Luzon, wing, 60; tail, 33; culmen from base, 10; bill from nostril, 6; tarsus, 13.

Young.—Similar to the adult but the upper parts darker and clearer brown; stripes on under parts indefinite and almost obsolete; the whole plumage is gray rather than brown.

"Found in the forest only. Iris brick-red; legs, feet, and nails nearly black; upper mandible brown, lower gray." (*Bourns and Worcester MS.*)

Family NECTARINIIDÆ.

Bill slender, usually strongly decurved and tapering to the sharply pointed tip; bill as long as head or much longer, without notch or hook, but the cutting edges minutely serrated for their distal thirds; rictal bristles inconspicuous or lacking; each nostril opening covered by a large opercle; first primary less than one-half the second, the latter decidedly shorter than third which nearly equals the fourth and fifth; tail square, rounded, or strongly graduated.

Subfamilies.

a^1. Bill and head about equal in length; sexes different in colors; plumage of male more or less metallic.. **Nectariniinæ** (p. 642)

a^2. Bill at least twice as long as the head; sexes alike in colors and without metallic plumage.. **Arachnotherinæ** (p. 662)

Subfamily NECTARINIINÆ.

Genera.

*a*¹. Nasal opercles covered with short feathers; rectrices long and graduated. **Chalcostetha** (p. 642)

*a*². Nasal opercles naked; or, if feathered, the tail moderate in length and nearly square.

- *b*¹. Rump bright yellow, or else the throat greenish or pale yellow.
  - *c*¹. Tail of males usually long and strongly graduate; central rectrices often slender and somewhat pointed and always extending beyond the feet. **Æthopyga** (p. 643)
  - *c*². Tail short and nearly square, never extending beyond the toes. **Eudrepanis** (p. 649)
- *b*². Rump dull green, or some metallic color nearly uniform with the back; tail square, none of the rectrices narrow.
  - *c*¹. Much smaller; wing about 60 mm.; bill more slender and more strongly curved .... **Cinnyris** (p. 651)
  - *c*². Much larger: wing about 70 mm.; bill stouter and but slightly curved. **Anthreptes** (p. 658)

Genus CHALCOSTETHA Cabanis, 1850.

Back, rump, and tail-coverts metallic green and purple; top of head bright metallic green; rectrices graduated; nasal opercles covered with short feathers. The last character mentioned distinguishes *Chalcostetha* from all nearly related genera.

652. CHALCOSTETHA CALCOSTETHA (Jardine).

COPPER-BREASTED SUNBIRD.

Nectarinia calcostetha JARDINE, Monogr. Sun-Birds (1842), 263.

Nectarinia insignis JARDINE, Monogr. Sun-Birds (1842), 274.

Chalcostetha insignis SHELLEY, Monogr. Nect. pt. 4, (1877), 87; pl. 30; GADOW, Cat. Birds Brit. Mus. (1884), 9, 12; MCGREGOR and WORCESTER, Hand-List (1906), 98.

Balabac (*Everett*); Palawan (*Everett, Whitehead, Steere Exp., Bourns & Worcester, White*). Tenasserim, Cochin China, Sunda Islands, Malay Peninsula, Siam, Sumatra, Borneo, Celebes.

Male.—Forehead, crown, and nape metallic green; mantle dull black; median and lesser wing-coverts, back, and tail-coverts metallic purple when held away from the light, changing to dark green when held toward the light; tail black, some of its feathers edged with violet; wings blackish brown, the greater secondary-coverts edged with violet; middle of throat and breast with a large metallic copper-colored patch; chin, a line down each side of the copper-colored patch, and lower breast metallic violet; abdomen and under tail-coverts black; pectoral tufts bright lemon-yellow. Length, about 140; wing, 61; tail, 52; culmen from base, 18; bill from nostril, 16; tarsus, 14. Description and measurements from a specimen taken by C. B. Kloss in Singapore.

"*Female.*—Crown and nape ashy brown; rest of upper parts yellowish olive; tail black, largely tipped with white; under parts whitish, strongly washed with pale yellow. Wing, 51." (*Gadow.*)

"Iris, bill, legs, feet, and nails black. Food insects." (*Bourns and Worcester MS.*)

Genus ÆTHOPYGA Cabanis, 1850.

Bill as long as head, strongly curved, the tip very sharp; nasal opercles unfeathered; males with the rectrices narrow and graduated, the middle pair usually much produced and often acuminate. Males brightly colored, largely red or yellow or both; females greenish.

Species.

- a^1. Much larger; wing more than 50 mm.; bill from nostril more than 15.
  - b^1. Central rectrices lengthened, their tips rounded (males).
    - c^1. Chin, throat, breast, head, and mantle bright red........ **magnifica** (p. 644)
    - c^2. Chin and throat with a narrow median stripe of citron-yellow changing to orange on breast; mantle dark green............................ **boltoni** (p. 645)
  - b^2. Central rectrices not lengthened (females).
    - c^1. Tail-feathers edged with dull crimson; under parts dull green. **magnifica** (p. 644)
    - c^2. Tail-feathers edged with green; chest gray; abdomen yellow. **boltoni** (p. 645)
- a^2. Much smaller; wing less than 50 mm.; bill from nostril less than 15.
  - b^1. Mantle and sides of neck dark red; chin, throat, and breast yellow (males).
    - c^1. Breast streaked with vermilion.
      - d^1. Chin, throat, and breast paler, sulphur-yellow.
        - e^1. Metallic frontal band extending backward to the occiput; occiput dark red like the back.. **shelleyi** (p. 646)
        - e^2. Metallic frontal band extending backward to the hinder border of eye; occiput green... **arolasi** (p. 648)
      - d^2. Chin, throat, and breast darker, more gamboge-yellow.
        - e^1. Smaller; wing, about 40 mm.; bill from nostril, 11...... **bella** (p. 647)
        - e^2. Larger; wing, about 44 mm.; bill from nostril, 14........ **bonita** (p. 648)
    - c^2. Breast pure yellow, or very faintly streaked with vermilion.
      - d^1. Breast gamboge-yellow and slightly darker than chin. **flavipectus** (p. 649)
      - d^2. Breast, throat, and chin more nearly uniform and lighter yellow. **rubrinota** (p. 649)
  - b^2. Upper parts bright olive-green; under parts whitish, more or less washed with pale yellowish green (females).
    - c^1. Rump olive-green like the back.. { **shelleyi** (p. 646), **arolasi** (p. 648)
    - c^2. Rump lemon-yellow .... { **bella** (p. 647), **bonita** (p. 648), **flavipectus** (p. 649), **rubrinota** (p. 649)

653. ÆTHOPYGA MAGNIFICA Sharpe.

MAGNIFICENT SUNBIRD.

Æthopyga magnifica SHARPE, Nature (1876), **14**, 297; Trans. Linn. Soc. 2d. ser. Zool. (1877), **1**, 342; SHELLEY, Monogr. Nectarin. pt. 3 (1877), 51, pl. 17; GADOW, Cat. Birds Brit. Mus. (1884), **9**, 24; GRANT and WHITEHEAD, Ibis (1898), 241, pl. 5, figs. 5 & 6 (eggs); WHITEHEAD, Ibis (1899), 229 (nest); MCGREGOR and WORCESTER, Hand-List (1906), 98.

Cebu (*Everett, Bourns & Worcester, McGregor*); Negros (*Steere, Everett, Steere Exp., Bourns & Worcester, Whitehead, Celestino*); Panay (*Bourns & Worcester*); Sibuyan (*Bourns & Worcester, McGregor*); Tablas (*Bourns & Worcester, Celestino*).

Male.—Forehead and malar stripe metallic, dark royal purple; remainder of head, entire neck, and mantle bright poppy-red; chin, throat, and breast scarlet-vermilion, the basal and central parts of the feathers pale yellow; back and rump black with a median more or less concealed patch of gamboge-yellow; tail and coverts metallic royal purple; wings, lower breast, abdomen, and under tail-coverts dead black; axillars and wing-lining black; lesser and median wing-coverts red, and some of the greater coverts narrowly edged with red. A male from Cebu measures: Wing, 59; tail, 49; culmen from base, 24; bill from nostril, 19; tarsus, 16. Upper mandible brown, lower mandible reddish flesh; legs and nails dark brown.

Female.—Dull green with a slight reddish wash across the back; wing-feathers and rectrices blackish brown, the latter edged with dark crimson; wing-feathers and rump more faintly washed with crimson. A female from Cebu, wing, 56; tail, 43; culmen from base, 22; bill from nostril, 18; tarsus, 15.

Young birds resemble the adult female, but the young males early show indications of the red throat and breast and of the black abdomen.

"Eight males from Negros average: Length, 133; wing, 57.6; tail, 47.4; culmen, 25; tarsus, 15; middle toe with claw, 15. Three females from Cebu measure: Length, 125; wing, 55; tail, 41; culmen, 25; tarsus, 16; middle toe with claw, 16. Nine males from Sibuyan average: Length, 137; wing, 61; tail, 51; culmen, 25; tarsus, 16; middle toe with claw, 16.

"It will be seen that the Sibuyan birds belong to a larger race, but we do not think they can be specifically separated. Breeding in the month of June in Cebu. Native name in Negros 'a-na-nag-bac.' Shot in Sibuyan 1,100 meters above sea-level." (*Bourns and Worcester MS.*)

Two eggs of the magnificent sunbird collected by Steere in Negros, February, 1888, and three eggs collected at the base of Canlaon Volcano by Whitehead, March 23, 1896, are described as follows:

"Shape ovate. Ground-color pale terra-cotta red, very thickly mottled all over with a darker tint of the same color, the mottlings heaviest at the larger end, a few fine hair-like scribblings crossing the shell transversely. Measurements 17 mm. by 12 mm."

Another set of two eggs, collected by Whitehead in Negros, April 15, 1896, are described as having the "Ground-color as in the above, but the shell heavily clouded with rich dark terra-cotta and darker scribblings and specks of the same color. Measurements 16 mm. by 12 mm."

"This sunbird nests in old forest. The nest is generally found suspended among forest débris in the vicinity of some huge tree-trunks only a few feet from the ground. It is well hidden by the undergrowth.

"The nest is a well-woven bag-shaped structure, with a roofed entrance at the side. It is principally constructed of fine grass, rootlets, palm fiber, and fragments of dead leaves woven together with spiders' webs and lined with fine dead grass tops and seeds. The nest found by Professor Steere was suspended from a root under the overhanging bank of a river, and looked like a tuft of rubbish left by high water." (*Grant and Whitehead.*)

654. ÆTHOPYGA BOLTONI Mearns.

BOLTON'S SUNBIRD.

Æthopyga boltoni MEARNS, Proc. Biol. Soc. Wash. (1905), 18, 4; MCGREGOR and WORCESTER, Hand-List (1906), 98; Grant, Ibis (1906), 472.

Kah-poi-yah-poi-yuh, or *kah-pue-yoo-ahn*, Bagobo of Mount Apo.
Mindanao (*Mearns, Goodfellow*).

"*Adult male.*—Entire head and neck all round, except middle of chin and throat, slate-gray, faintly washed with french-green, the feathers of the forehead narrowly edged with metallic french-green; upper back gray, strongly washed with oil-green; lower back olive-green; rump citron-yellow; wings brownish black with wing-coverts and outer webs of secondaries olive-green; under wing-coverts and edges of inner webs of primaries and secondaries white; tail with longest feather 12 mm. longer than the next, 25 mm. longer than the outer rectrix; middle pair of tail-feathers entirely metallic french-green, the remaining rectrices being green-black, broadly tipped with gray on the outer and white on the inner webs; under parts with a median stripe of citron-yellow extending from bill to chest, broadening posteriorly and minutely mixed with orpiment-orange at upper margin of chest; flanks, abdomen, and under tail-coverts yellow; chest orange; pectoral tufts chinese-orange. Iris red; bill black faintly tipped with horn-color; feet and claws black, except the under side of toes which are yellowish. Length, 130; alar expanse, 180; wing, 57; tail, 55; culmen (chord), 21; tarsus, 18; middle toe with claw, 14.

"*Adult female.*—Head, neck all round, and chest slate-gray; upper parts, including upper wing-coverts and exposed outer webs of wing-quills, olive-yellow; tail similar to that of male, but shorter and duller, with feathers rounded at tip; under parts, including under tail-coverts, yellow, whitish on middle of abdomen. Size considerably smaller than male. Culmen, 18; wing, 48.

"*Young male in first plumage.*—Head, sides of throat, and upper parts smoke-gray, washed on lower back, rump, and upper tail-coverts with green; upper wing-coverts and exposed portion of outer webs of quills olive-green; under parts, including stripe on middle of chin and throat, smoke-gray washed with greenish yellow; lining of wings white; tail-feathers pointed, similar to the adult but shorter and duller. Iris brown; bill black, orange at base, yellow and orange inside; metatarsus black; toes orange, dusky above. Older males soon grow to resemble adults, the orange first showing in the middle of the breast, the flanks and belly becoming yellow at the same time, the pectoral tufts and richest coloring probably not appearing before the second year." (*Mearns.*)

655. **ÆTHOPYGA SHELLEYI** Sharpe.

SHELLEY'S SUNBIRD.

Æthopyga shelleyi SHARPE, Nature (1876), 14, 297; Trans. Linn. Soc. 2d. ser. Zool. (1877), 1, 342; SHELLEY, Monogr. Nectarin. (1877), pt. 3, 75; (1880), pts. 11 & 12, pls. 24 & 25, fig. 1; GADOW, Cat. Birds Brit. Mus. (1884), 9, 29; MCGREGOR and WORCESTER, Hand-List (1906), 98.

Balabac (*Steere, Everett*); Calamianes (*Bourns & Worcester*); Palawan (*Steere, Whitehead, Everett, Platen, Steere Exp., Bourns & Worcester, McGregor, Celestino, White*).

Male.—Forehead, crown, long moustachial stripe, upper tail-coverts, middle rectrices, and outer webs of remaining rectrices dark metallic green when held away from the light, changing to dark blue when held toward the light; occiput, mantle, and sides of head and neck maroon-red; chin and a narrow line bordering the throat maroon-red; throat and breast sulphur-yellow, the latter streaked with vermilion; abdomen pale gray or white, washed in the middle with pale yellow; under tail-coverts pale yellow; back olive-green; rump sulphur-yellow; wing-feathers blackish brown edged with olive-green. Length, about 110; wing, 47; tail, 44; culmen from base, 16; bill from nostril, 11; tarsus, 14.

Female.—Above olive-green; wing-feathers and rectrices dark brown edged with olive-green; bases of the rectrices with a wash of reddish brown; below white, washed with light olive on the breast and with pale yellow on the abdomen and under tail-coverts. Length, 89; wing, 42; tail, 25; culmen from base, 14; bill from nostril, 11; tarsus, 13.

"Ten males average: Length, 111; wing, 46; tail, 46; culmen, 17; tarsus, 14; middle toe with claw, 12. Ten females, length, 87; wing, 43; tail, 29; culmen, 16; tarsus, 13; middle toe with claw, 12. Calamianes birds are very slightly smaller, but are otherwise identical. Shot at a height of 760 meters on Mount Pulgar in Palawan, where it was abundant." (*Bourns and Worcester MS.*)

656. ÆTHOPYGA BELLA Tweeddale.

TWEEDDALE'S SUNBIRD.

Æthopyga bella TWEEDDALE, Ann. & Mag. Nat. Hist. (1877), **20**, 537: SHELLEY, Monogr. Nectarin. (1879), pts. 9 & 10, 77, pl. 25; GADOW, Cat. Birds Brit. Mus. (1884), **9**, 29; GRANT, Ibis (1897), 236; GRANT and WHITEHEAD, Ibis (1898), 242 (eggs); WHITEHEAD, Ibis (1899), 229 (nest); MCGREGOR and WORCESTER, Hand-List (1906), 98.

Mindanao (*Everett, Celestino*); Samar (*Steere Exp., Whitehead*).

"*Male.*—Chin, throat, breast, and uropygium bright sulphur-yellow; forehead, vertex, minor carpal coverts, upper tail-coverts, and upper surface of rectrices dark metallic green; occiput, nape, and wing-coverts dark olive; cheeks, lores, behind the eye, sides of head and neck, interscapulars, and back deep blood-red; quills almost black, margined with dark olive; abdomen, flanks, vent, under tail-coverts, and under wing-coverts silky white, more or less tinged with pale yellow, especially on the mesial line, under tail-coverts, and carpal edge; a few blood-red feathers on the upper breast; a metallic violet spot on side of head; a narrow line of deep blood-red runs along the rami of the mandible; a bold metallic moustache springs from the base of the mandible, and descends the sides of the neck; the upper half violet, the lower half green. Wing, 42.6; tail, 36.5; culmen, 13; tarsus, 13.

"*Female.*—Above, wing-coverts, and edgings to quills olive-green; uropygium bright sulphur-yellow as in the male; space before the eye, cheeks, ear-coverts, chin, throat, and upper breast gray, tinged with yellowish olive-green; lower breast, abdomen, flanks, and under tail-coverts white tinged with yellow; under wing-coverts white faintly tinged with yellow; quills and rectrices dark brown margined with olive; lateral rectrices tipped with albescent olive. Wing, 41; tail, 28; culmen, 13: tarsus, 13." (*Tweeddale.*)

Three fresh eggs of this sunbird collected by Whitehead near Paranas, Samar, July 19, 1895, are thus described: "Shape ovate. Ground-color pale pinkish white, a heavily, marked irregular zone of dull red toward the larger end, and some scattered spots and blotches of the same color over the rest of the shell, with here and there underlying brown markings. Measurements 14 mm. by 10 mm.

"The nest built by this sunbird differs considerably from that made by *Æ. magnifica,* being a long bag-shaped pocket, with a loose dangling tail of dead leaves. The entrance is at the side and roofed over, in fact very much like that constructed by the different species of *Cinnyris*. This nest was found dangling to a bramble in an old native clearing some distance from the forest. The female was obtained after much difficulty." (*Grant and Whitehead.*)

657. **ÆTHOPYGA AROLASI** Bourns and Worcester.

AROLAS'S SUNBIRD.

Æthopyga arolasi BOURNS and WORCESTER, Minnesota Acad. Nat. Sci. Occ. Papers (1894), 1, 17; MCGREGOR and WORCESTER, Hand-List (1906), 98.

Sulu (*Bourns & Worcester*); Tawi Tawi (*Bourns & Worcester*).

"*Adult male.*—Slightly larger than *Æthopyga bella.* Upper surface as in that species; fore breast much more broadly streaked with orange; abdomen and under tail-coverts light lemon-yellow, not white.

"*Adult female.*—Above uniform olive-green. Does not show the bright yellow rump of *Æthopyga bella.* Under surface inclining to white, but breast, abdomen, and under tail-coverts washed with light lemon-yellow.

"Average measurements from ten males: Length, 87; culmen, 18; wing, 40; tail, 33; tarsus, 12. From four females: Length, 83; culmen, 16; wing, 40; tail, 25; tarsus, 12." (*Bourns and Worcester.*)

658. **ÆTHOPYGA BONITA** Bourns and Worcester.

VISAYAN SUNBIRD.

Æthopyga bonita BOURNS and WORCESTER, Minnesota Acad. Nat. Sci. Occ. Papers (1894), 1, 17; MCGREGOR and WORCESTER, Hand-List (1906), 98.

Cebu (*Bourns & Worcester, McGregor*); Masbate (*Bourns & Worcester, McGregor*); Negros (*Celestino*); Panay (*Bourns & Worcester*); Ticao (*McGregor*).

Male.—Very similar to the male of *Æ. arolasi,* but the yellow of throat, breast, and rump gamboge or dark lemon-yellow instead of lemon-yellow and the red streaks on breast more conspicuous. Iris dark brown; bill, legs, and nails black. A male from Cebu measures: Wing, 44; tail, 32.5; culmen from base, 17; bill from nostril, 14; tarsus, 14.

Female.—Similar to the female of *Æ. arolasi,* but the rump pale yellow and the under parts washed with light yellowish green very much as in the female of *Æ. shelleyi.* A female from Cebu, wing, 42; tail, 23; culmen from base, 17; bill from nostril, 13; tarsus, 13.

"Four males average: Length, 94; wing, 43; tail, 32; culmen, 18; tarsus, 14; middle toe with claw, 13. Three females, length, 89; wing, 40; tail, 24; culmen, 17; tarsus, 13; middle toe with claw, 12. Iris dark brown; bill, legs, feet, and nails black. Breeding in Cebu in the month of June." (*Bourns and Worcester MS.*)

659. ÆTHOPYGA FLAVIPECTUS Grant.

GRANT'S SUNBIRD.

Æthopyga flavipectus GRANT, Bull. Brit. Orn. Club (1894), 3, 49; Ibis (1895); 111, pl. 5, fig. 1; WHITEHEAD, Ibis (1899), 229 (habits); MCGREGOR and WORCESTER, Hand-List (1906), 98.

Æthopyga minuta BOURNS and WORCESTER, Minnesota Acad. Nat. Sci. Occ. Papers (1894), 1, 18.

Luzon (*Whitehead, McGregor*); Mindoro (*Whitehead, Bourns & Worcester, McGregor*); Polillo (*McGregor*).

Male.—Very similar to the male of *Æ. bella* and of *Æ. bonita,* but with very little or no red on the breast. Length, about 100; wing, 42; tail, 34; culmen from base, 16; bill from nostril, 12.5; tarsus, 12.

Female.—Similar to the female of *Æ. bonita,* but the head somewhat darker and the bill shorter. Wing, 41; tail, 21.5; culmen from base, 14.5; bill from nostril, 11.5; tarsus, 11.5.

660. ÆTHOPYGA RUBRINOTA McGregor.

RED-SPOTTED SUNBIRD.

Æthopyga rubrinota MCGREGOR, Bur. Govt. Loboratories (1905), 25, 30; MCGREGOR and WORCESTER, Hand-List (1906), 98.

Pi-rit, Lubang.
Lubang (*McGregor*).

Male.—Very similar to the male of *Æ. flavipectus,* but the breast paler yellow. Length, about 96; wing, 42; tail, 39; culmen from base, 14.5; bill from nostril, 11.5; tarsus, 13.5.

Female.—Similar to the female of *Æ. flavipectus.* Wing, 41.5; tail, 20; culmen from base, 14; bill from nostril, 11; tarsus, 12.5.

Genus EUDREPANIS Sharpe, 1877.

This genus is very similar to *Æthopyga,* but the tail is short in both sexes; from *Cinnyris* it differs in having no metallic colors on the chin and throat.

Species.

- a^1. Chin, throat, and breast bright yellow (males).
  - b^1. Chin, throat, and breast bright lemon-yellow; more red on the breast.
    - c^1. Secondaries edged with metallic green .... **jefferyi** (p. 651)
    - c^2. Secondaries edged with dull olive-green .... **pulcherrima** (p. 650)
  - b^2. Chin, throat, and breast pale sulphur-yellow; less red on the breast. **decorosa** (p. 651)
- a^2. Chin and throat gray; breast washed with greenish yellow; no red on the breast (females).
  - b^1. Rump bright lemon-yellow .... { **jefferyi** (p. 651) / **pulcherrima** (p. 650) }
  - b^2. Rump pale sulphur-yellow .... **decorosa** (p. 651)

661. **EUDREPANIS PULCHERRIMA** (Sharpe).

MINDANAO SUNBIRD.

Æthopyga pulcherrima SHARPE, Nature (1876), 14, 297; GADOW, Cat. Birds Brit. Mus. (1884), 9, 31.

Eudrepanis pulcherrima SHARPE, Trans. Linn. Soc. 2d. ser. Zool. (1877), 1, 341; SHELLEY, Monogr. Nectarin. pt. 3 (1877), 83, pl. 28; GRANT and WHITEHEAD, Ibis (1898), 242 (eggs); WHITEHEAD, Ibis (1899), 229; MCGREGOR and WORCESTER, Hand-List (1906), 99.

Æthopyga dubia TWEEDDALE, Proc. Zool. Soc. (1878), 112.

Basilan (*Steere, Bourns & Worcester, McGregor*); Dinagat (*Everett*); Leyte (*Steere Exp., Whitehead*); Mindanao (*Celestino*); Samar (*Steere Exp., Bourns & Worcester, Whitehead*).

Male.—Forehead and crown to opposite center of eye metallic french-blue; hind crown, sides of neck, and back olive-green; lower back and rump lemon-yellow; a patch above ear-coverts metallic greenish blue; lores, cheeks, and jaw dull black; under parts rich lemon-yellow becoming much paler on lower abdomen, flanks, and crissum; a large scarlet patch on chest partly broken up by the yellow tips of the feathers; wing-quills blackish brown, externally edged with olive-green and on inner webs with white; secondary-coverts black, broadly tipped with rich metallic green; alula and primary-coverts black, narrowly edged or tipped with metallic green; upper tail-coverts and middle pair of rectrices rich metallic green, the other rectrices black, edged with metallic green; lining of wing white. A male from Basilan measures: Length, 89; wing, 45; tail, 23.5; culmen from base, 19; bill from nostril, 15; tarsus, 14.

"*Female.*—Without any metallic colors; upper parts olive, inclining to ashy brown on the crown and sides of the head; tail dark brown, washed with olive, tipped with white; under wing-coverts and inner edge of quills white; rest of under parts dingy yellowish. Wing, 46 tail, 25; tarsus, 14." (*Gadow.*)

"Three male birds average: Length, 95; wing, 48; tail, 23; culmen, 21; tarsus, 14; middle toe with claw, 13. Two females, length, 85; wing, 43; tail, 23; culmen, 21; tarsus, 13; middle toe with claw, 12. Iris brownish red; legs, feet, and nails black; bill black. Birds from Basilan, however, have legs and feet brown. Food insects." (*Bourns and Worcester MS.*)

Whitehead collected three slightly incubated eggs of this short-tailed sunbird near Paranas, Samar, on July 26, 1896. They are described as follows: "Shape ovate. Ground-color dull pink, rather thicky mottled all over with pinkish gray, especially towards the larger end, the markings forming a rather distinct zone round the pole. The over-markings are small rounded spots and dots of deep vandyke-brown. Measurements

15 mm. by 12 mm. Nest attached to the under side of a climbing fern about 8 feet [2.4 meters] from the ground." (*Grant and Whitehead.*)

662. **EUDREPANIS JEFFERYI** Grant.

LUZON SUNBIRD.

Eudrepanis jefferyi GRANT, Bull. Brit. Orn. Club (1894), 3, 1; Ibis (1895), 111, pl. 5, fig. 2; WHITEHEAD, Ibis (1899), 229 (nest, feeding habits); MCGREGOR and WORCESTER, Hand-List (1906), 99.

Luzon (*Whitehead, McGregor*).

Male.—Differs from the male of *E. pulcherrima* in having the outer webs of secondaries metallic green instead of olive-green and entire outer webs of primaries blackish brown with traces of metallic green. Bill, legs, and nails black. Length, 95; wing, 50; tail, 27; culmen from base, 20.5; bill from nostril, 16; tarsus, 14.

Female.—Above olive-green, darker and browner on the crown; rump lemon-yellow; under parts pale yellowish; grayer on chin and throat; wing-feathers blackish brown, edged with olive-green; rectrices blackish brown, tipped with dirty white, and narrowly edged with metallic green. Wing, 46; tail, 27; culmen from base, 19; bill from nostril, 15; tarsus, 15.

663. **EUDREPANIS DECOROSA** McGregor.

BOHOL SUNBIRD.

Eudrepanis decorosa MCGREGOR, Phil. Jour. Sci. (1907), 2, sec. A, 330.

Bohol (*McGregor*).

Male.—Similar to the male of *E. jefferyi*, but metallic color on secondaries and wing-coverts steel-blue instead of green; rump-patch and under parts pale sulphur-yellow; red on chest reduced to a few small spots. Bill, legs, and nails black. Length, 89; wing, 45; tail, 24; culmen from base, 19; bill from nostril, 15; tarsus, 14.

Female.—Similar to the female of *E. jefferyi*, but the rump-patch sulphur-yellow. Wing, 44; tail, 22; culmen from base, 18; bill from nostril, 14.5; tarsus, 13.

Genus CINNYRIS Cuvier, 1817.

Bill and head about equal in length; tail moderately long, nearly square, and extending beyond the folded wings; nasal opercles covered with short feathers. Males with chin, throat, and fore breast usually metallic colored, or at least of a different color from the lower breast and abdomen; females with no metallic colors and the under parts light yellow or green.

Species.

- a^1. Chin, throat, and fore breast black or metallic colored, very distinct from the color of lower breast and abdomen (males).
  - b^1. Breast bright red.
    - c^1. Mantle maroon-red .... **sperata** (p. 652)
    - c^2. Mantle velvety black .... **henkei** (p. 653)
  - b^2. Breast and abdomen yellow, or orange and yellow.
    - c^1. Metallic color on under surface confined to chin and middle of fore throat.
      - d^1. Forehead metallic steel-green; crown and nape yellowish olive-green. **flagrans** (p. 654)
      - d^2. Forehead dark metallic purple; crown and nape dull red. **guimarasensis** (p. 655)
    - c^2. Metallic color of under surface covering entire chin, throat, and fore breast.
      - d^1. Tail not tipped with white; forehead and crown metallic green; mantle maroon-red; entire chin and throat metallic purple...... **juliæ** (p. 654)
      - d^2. Tail with a broad white tip; forehead and all the upper parts dull green; chin, throat, and fore breast metallic bluish black.
        - e^1. Posterior under parts yellow with no orange next the black fore breast .... **jugularis** (p. 656)
        - e^2. Posterior under parts yellow with a large bright orange patch next the black fore breast........ **aurora** (p. 658)
- a^2. Chin, throat, and breast yellow or greenish, never metallic, and not very different in color from the abdomen (females).*
  - b^1. Light tip of tail gray, about 6 mm. in length on outermost pair of rectrices; general color of under parts apple-green.
    - c^1. Primaries and secondaries edged with dull orange-rufous.. { **sperata** (p. 652)
henkei (p. 653) }
    - c^2. Primaries, secondaries, and greater coverts edged with light claret-brown, this color extending faintly across the back........ **juliæ** (p. 654)
  - b^2. Light tip of tail white, about 10 mm. in length on outermost pair of rectrices; general color of under parts gamboge-yellow.. { **jugularis** (p. 656)
aurora (p. 658) }

664. CINNYRIS SPERATA (Linnæus).

RED-BREASTED SUNBIRD.

Certhia sperata LINNÆUS, Syst. Nat. ed. 12 (1766), 1, 186.
Cinnyris speratus SHELLEY, Monogr. Nectarin. pt. 4 (1877), 131, pl. 43.
Cinnyris sperata GADOW, Cat. Birds Brit. Mus. (1884), 9, 63; WHITEHEAD, Ibis (1899), 230; MCGREGOR and WORCESTER, Hand-List (1906), 99.

Siete colores, Spanish name in general use.

Basiao, off Samar (*Bartsch*); Bohol (*McGregor*); Calamianes (*Bourns & Worcester, McGregor*); Cebu (*Bourns & Worcester*); Dinagat (*Everett*); Guimaras (*Steere, Steere Exp.*); Leyte (*Steere Exp., Whitehead*); Lubang (*McGregor*); Luzon (*Meyer, Whitehead, McGregor*); Marinduque (*Steere Exp.*); Masbate (*Steere Exp., Bourns & Worcester, McGregor*); Mindanao (*Everett, Koch & Schadenberg, Celestino*); Mindoro (*Steere Exp., Bourns & Worcester, Everett, McGregor*); Negros (*Steere, Everett, Steere Exp., Bourns & Worcester, Keay*); Nipa (*Everett*); Palawan (*Everett, Platen, Whitehead, Steere Exp., Bourns & Worcester, White*); Panay (*Bourns & Worcester*); Polillo (*McGregor*); Romblon

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* I have not seen the females of *C. guimarasensis* and *C. flagrans*.

(*Bourns & Worcester, McGregor*); Samar (*Steere Exp., Bourns & Worcester, Whitehead, Bartsch*); Sibuyan (*Bourns & Worcester, McGregor*); Siquijor (*Bourns & Worcester, Celestino*); Tablas (*Bourns & Worcester, Celestino*); Ticao (*McGregor*).

Male.—Held away from the light top of head and hind neck reddish bronze, lower back, rump, and tail-coverts metallic green and amethystine; held toward the light, head and neck change to bronze-green; back, rump, and tail-coverts change to steel-green; lores, cheeks, and ear-coverts dull black; mantle, sides of neck, and wing-coverts dark maroon-red; chin, throat, and chest metallic violet away from the light, changing to purple when held toward the light; breast poppy-red; abdomen, thighs, flanks, and crissum olive-green; the last washed with red in some specimens; wing-feathers blackish, edged with maroon, a small metallic colored patch at carpal joint; rectrices blackish, edged with metallic violet and green. Iris brown; bill, legs, and nails black. A male from Masbate measures: Length, 102; wing, 50; tail, 29; culmen from base, 16; bill from nostril, 14; tarsus, 12.

Female.—Above light olive-green; feathers of head edged with gray; below greenish yellow, brighter on abdomen, flanks, and crissum; wings and tail blackish brown; primaries and secondaries edged with dull orange-rufous on outer webs and with white on inner webs; rectrices tipped with light gray. A female from Luzon, wing, 50; tail, 30; culmen from base, 16; bill from nostril, 14; tarsus, 12.

"Ten males from Palawan average: Length, 104; wing, 50; tail, 31; tarsus, 13; middle toe with claw, 13; culmen, 20. Ten females, culmen, 19; wing, 47; tail, 28; tarsus, 14; middle toe with claw, 13. Iris dark brown; bill, legs, and feet black. Called by natives of Palawan 'sopra daraga.' Breeding in Palawan in December; in Siquijor in February; in Negros in January; and in Samar in April." (*Bourns and Worcester MS.*)

665. CINNYRIS HENKEI Meyer.

HENKE'S SUNBIRD.

Cinnyris henkei MEYER, Zeitschr. für Ges. Orn. (1884), 207, pl. 7.

Cinnyris whiteheadi GRANT, Bull. Brit. Orn. Club (1894), 2, 1; Ibis (1894), 514, pl. 14, fig. 1; WHITEHEAD, Ibis (1899), 230 (distribution); McGREGOR and WORCESTER, Hand-List (1906), 99.

Leptocoma henkei DUBOIS, Syn. Av. (1902), 699.

Sa-uit sa-uit, Calayan.

Babuyan Claro (*McGregor*); Calayan (*McGregor*); Camiguīn N. (*McGregor*); Fuga (*McGregor*); Luzon (*Whitehead, McGregor*).

Male.—Similar to *C. sperata*, but mantle, hind neck, and sides of neck dull black; quills and wing-coverts entirely black, except the metallic green lesser coverts; abdomen, thighs, and crissum black, washed with olive-green. A male from Calayan measures: Wing, 535; tail, 32; culmen from base, 18; bill from nostril, 16; tarsus, 15.

Female.—Similar to the female of *C. sperata.* A female from Calayan measures: Wing, 52; tail, 31; culmen from base, 16; bill from nostril, 14; tarsus, 14.5.

666. CINNYRIS JULIÆ (Tweeddale).

JULIA'S SUNBIRD.

Nectarophila juliæ TWEEDDALE, Proc. Zool. Soc. (1877), 535; Challenger Report, Zool. (1881), **2**, pt. 8, figs. 2 & 3.

Cinnyris juliæ SHELLEY, Monogr. Nectarin. pts. 7 & 8 (1878), 135, pl. 44; GADOW, Cat. Birds Brit. Mus. (1884), **9**, 64; MCGREGOR and WORCESTER, Hand-List (1906), 99.

Basilan (*Steere Exp., Bourns & Worcester, McGregor*); Malanipa (*Murray*); Mindanao (*Everett*); Sulu (*Guillemard*); Tawi Tawi (*Bourns & Worcester, Everett*).

Male.—Above similar to the male of *C. sperata;* chin, throat, and chest metallic amethystine; breast bright lemon-yellow to cadmium-yellow, lighter posteriorly and old birds with a patch of scarlet-vermilion in the center of the breast; abdomen and remainder of under parts dark olive-green mixed with yellow. A male from Basilan measures: Wing, 50; tail, 31; culmen from base, 15; bill from nostril, 13; tarsus, 13.5.

Female.—Similar to the female of *C. sperata,* but wing-feathers edged with light claret-brown, this color extending faintly across the back; general color of under parts bright apple-green shading into yellow on middle of breast and abdomen. A female from Basilan measures: Wing, 45; tail, 27; culmen from base, 16; bill from nostril, 14; tarsus, 13.5.

"Nine males average: Length, 98; wing, 49; tail, 30; culmen, 19; tarsus, 13; middle toe with claw, 13. A female measures, length, 98; wing, 47; tail, 28; culmen, 19; tarsus, 14; middle toe with claw, 13. Iris dark brown; bill, legs, feet, and nails black. Green caterpillars were found in the stomach of one specimen." (*Bourns and Worcester MS.*)

667. CINNYRIS FLAGRANS (Oustalet).

FLAMING SUNBIRD.

Æthopyga flagrans OUSTALET, Jour. de l'Institut (1876), 108.

Cinnyris flagrans SHELLEY, Monogr. Nectarin. pt. 5 (1877), 147; pts. 11 & 12 (1880), pl. 47, fig. 2; GADOW, Cat. Birds Brit. Mus. (1884), **9**, 88; WHITEHEAD, Ibis (1899), 230 (habits); MCGREGOR and WORCESTER, Hand-List (1906), 99.

Cinnyris excellens GRANT, Bull. Brit. Orn. Club (1895), **4**, 18; Ibis (1895), 255, 275.

Catanduanes (*Whitehead*); Luzon (*Laglaise, Whitehead*).

"*Adult male.*—Forehead and chin metallic violet; upper tail-coverts metallic green; tail black, edged with metallic green and violet; the mantle, back, and outer edges of the dark brown wings olive-yellow; chin, sides of head, sides of neck, and fore neck black, this color extending likewise over the sides of the upper breast; no pectoral tufts;

center of fore neck and chest bright orange-red, which color passes gradually into the pale yellow of the rest of the under parts. Culmen, 18; wing, 51; tail, 33; tarsus, 13." (*Gadow.*)

"*Adult male.*—The metallic patch of feathers on the forehead is steel-green, and does not extend so far back; the rest of the crown and nape yellowish olive-green, shading into orange on the back; and the sides of the belly and flanks are olive-gray, pale yellowish in the middle, with a brilliant orange-red patch above. As in *C. guimarasensis,* the present species has the chin and upper part of the throat metallic purplish blue, and the chest and breast velvety black, divided up the middle by a brilliant orange-red band. Length, 102; wing, 48; tail, 30; tarsus, 14.

"A bird which appears to be a *nearly adult female,* though the sex was not ascertained, differs from the female of *C. guimarasensis* as described by Bourns and Worcester, Minn. Acad. Nat. Sci. Occ. Papers (1894), I, no. 1, 55, in the following points: The head and nape are dull olive-green, shading into brighter olive-green (instead of brownish) on the rest of the upper parts; the sides of the face are dull olive (not dark ashy gray); the throat and chest gray slightly washed with yellow, rather more marked on the chin, and the rest of the under parts are pale yellowish olive, with no trace of the orange-yellow on the breast as described in the female of *C. guimarasensis.*" (*Grant.*)

Specimens of the flaming sunbird collected by Whitehead were inadvertently described by Grant as new under the name *Cinnyris excellens.* Grant's descriptions are included here to supplement that by Gadow. I have not seen the species.

668. CINNYRIS GUIMARASENSIS Steere.

GUIMARAS SUNBIRD.

Cinnyris guimarasensis STEERE, List Birds & Mams. Steere Exped. (1890), 22; BOURNS and WORCESTER, Minnesota Acad. Nat. Sci. Occ. Papers (1894), 1, 55 (female); MCGREGOR and WORCESTER, Hand-List (1906), 99.

Guimaras (*Steere Exp.*); Negros (*Keay, Celestino*); Panay (*Bourns & Worcester*).

"*Adult male.*—Forehead and crown metallic green with violet reflections; hind head, neck, and upper part of mantle dark blood-red; back olive-yellow; chin violet; cheeks, sides of neck, and throat velvety black; breast rich orange separated from the black of the throat by a sulphur-yellow band; a central stripe on the throat, partly concealed, of rich vermilion; flanks and abdomen pale yellow. Length, 89; wing, 48." (*Steere.*)

"*Adult female.*—Head and nape light olive-green, becoming browner on back, wing-coverts, and outer webs of secondaries; upper tail-coverts like back; tail black, webs of central pair of feathers washed with same color as back; sides of face dark ashy gray, edges of feathers darker than centers; chin light yellow; entire throat gray, faintly washed with yellow; entire breast bright orange-yellow paler on flanks, abdomen, and under tail-coverts; axillars, under wing-coverts, and inner webs of quills pure white." (*Bourns and Worcester.*)

"The length of our specimens was not taken in the flesh. Average from six males: Wing, 48; tail, 31; culmen, 20; tarsus, 14; middle toe with claw, 13. Six females, wing, 44; tail, 28; culmen, 18; tarsus, 13; middle toe with claw, 13. Bill, iris, legs, feet, and nails black." (*Bourns and Worcester MS.*)

669. **CINNYRIS JUGULARIS** (Linnæus).

YELLOW-BREASTED SUNBIRD.

Certhia jugularis LINNÆUS, Syst. Nat. ed. 12 (1766), 1, 185.

Cinnyris jugularis SHELLEY, Monogr. Nectarin. pt. 3 (1877), 151, pt. 6 (1878), pl. 48; GADOW, Cat. Birds Brit. Mus. (1884), 9, 84; GRANT and WHITEHEAD, Ibis (1898), 243 (eggs); WHITEHEAD, Ibis (1899), 230 (habits); MCGREGOR and WORCESTER, Hand-List (1906) 99.

Cinnyris obscurior GRANT, Bull. Brit. Orn. Club (1894), 3, 1; (1895), 451.

Cyrtostomus dinagatensis MEARNS, Proc. Biol. Soc. Wash. (1905), 18, 5.

Cyrtostomus jugularis mindanensis MEARNS, Proc. U. S. Nat. Mus. (1909), 36, 443.*

Cyrtostomus jugularis woodi MEARNS, Proc. U. S. Nat. Mus. (1909), 36, 444.†

Tam-si, Bohol; *pú-si-u*, Ticao and Masbate; *pi-pít pú-go*, Manila.

Bantayan (*McGregor*); Basiao, off Samar (*Bartsch*); Basilan (*Everett, Steere Exp., Bourns & Worcester, McGregor*); Bohol (*Everett, McGregor*); Bongao (*Everett*); Caluya (*Porter*); Camiguin S. (*Murray*); Catanduanes (*Whitehead*); Cebu (*Meyer, Everett, Steere Exp., Bourns & Worcester, McGregor*); Dinagat (*Everett*); Guimaras (*Meyer, Steere Exp., Bourns & Worcester*); Leyte (*Everett, Steere Exp., Whitehead*); Lubang (*McGregor*); Luzon (*Everett, Steere Exp., Bourns & Worcester, Whitehead, McGregor, Bartsch*); Maestre de Campo (*McGregor & Worcester*); Marinduque (*Steere Exp.*); Masbate (*Bourns & Worcester, McGregor, Bartsch*); Mindanao (*Steere, Everett, Koch & Schadenberg, Steere Exp.*,

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* "*Characters.*—Most closely resembling *Cyrtostomus jugularis jugularis* of Luzon, but slightly larger, with the upper parts olive-green instead of brownish olive-gray; under parts nearly uniform lemon-yellow instead of canary-yellow." (*Mearns.*)

† "*Characters.*—Smaller than *Cyrtostomus jugularis aurora*, *C. jugularis jugularis*, or *C. jugularis dinagatensis*, old males differing from all three in the metallic reflections on the middle of the dark metallic plastron, which are bluish and violet instead of green-blue; under parts shading *very gradually* from rich orange, adjoining the dark metallic plastron, to clear yellow on the crissum and under tail-coverts; back a more golden olive-green than in the other Philippine forms; forehead, lores, and superciliary stripe solid metallic violet purple." (*Mearns.*)

Bourns & Worcester, Celestino, Goodfellow); Mindoro (*Steere Exp., Bourns & Worcester, McGregor*); Negros (*Meyer, Steere, Everett, Steere Exp., Bourns & Worcester, Keay*); Panay (*Steere, Murray, Steere Exp., Bourns & Worcester*); Polillo (*McGregor*); Romblon (*Bourns & Worcester, McGregor*); Samar (*Steere Exp., Bourns & Worcester*); Semirara (*Worcester*); Sibay (*McGregor & Worcester*); Sibutu (*Everett*); Sibuyan (*Bourns & Worcester, McGregor*); Siquijor (*Bourns & Worcester, Celestino*); Sulu (*Guillemard, Bourns & Worcester*); Tablas (*Bourns & Worcester*); Tawi Tawi (*Bourns & Worcester*); Ticao (*McGregor*); Verde (*McGregor*).

Male.—Above olive-green, brightest on the rump; chin, throat, and chest glossy blue-black washed with dark aster-purple; remainder of under parts gamboge-yellow, darkest next to the black chest-patch; wing-feathers dark brown, outer webs edged with olive-green, inner webs edged with white; rectrices black, two or three outer pairs tipped with white. Bill, legs, and nails black. A male from Bohol measures: Wing, 55; tail, 38; culmen from base, 19; bill from nostril, 15; tarsus, 15.

Female.—Above similar to the male; below gamboge- or lemon-yellow, whitish on the chin, and with obscure dusky mottlings on the throat, brightest yellow on middle of breast and abdomen. A female from Siquijor measures: Wing, 50; tail, 33; culmen from base, 19; bill from nostril, 15; tarsus, 15.

The *young male* resembles the female and from this plumage gradually acquires the black throat and chest. In many specimens (very old males?) there is more or less orange next to the black chest, while the forehead and a small area above the eye often develop a few metallic blue feathers.

"This sunbird shows great variability in the color of the breast, some specimens having an amount of orange approximating, but never quite equaling, that displayed by *C. aurora.* Ten males average: Length, 119; wing, 56; tail, 40; culmen, 21; tarsus, 14; middle toe with claw, 14. Ten females, length, 114; wing, 52; tail, 36; culmen, 20; middle toe with claw, 14; tarsus, 14. Bill, legs, feet, and nails black; iris very dark brown. Breeds in February and March." (*Bourns and Worcester MS.*)

Three eggs of the yellow-breasted sunbird from Marinduque, May 17, 1888, collected by Steere, are described as follows: "Shape ovate. Ground-color whitish partially obscured by the mottled gray under markings, which cover the greater part of the shell; over markings pale brown, with a few spots and irregular marks of a deep brown. Measurements 16 mm. by 12 mm.

"The nest is a neatly woven pocket-shaped structure, with a roofed entrance at the side. It is composed of fiber, dead grasses, and other forest débris bound together with spiders' webs and lined with cotton and fine grass." (*Grant and Whitehead.*)

670. **CINNYRIS AURORA** (Tweeddale).

ORANGE-BREASTED SUNBIRD.

Cyrtostomus aurora TWEEDDALE, Proc. Zool. Soc. (1878), 620.
Cinnyris aurora SHELLEY, Monogr. Nectarin. pts. 9 & 10 (1879), 149, pts. 11 & 12 (1880), pl.; GADOW, Cat. Birds Brit. Mus. (1884), 9, 88; MCGREGOR and WORCESTER, Hand-List (1906), 99.

A-ru-ma-sít, Cuyo; *da-gu-man'*, Cagayancillo.

Agutaya (*McGregor*); Balabac (*Steere Exp.*); Cagayancillo (*McGregor*); Calamianes (*Bourns & Worcester, McGregor*); Cuyo (*McGregor*); Palawan (*Everett, Lempriere, Whitehead, Platen, Steere Exp., Bourns & Worcester, Celestino, White*).

Male.—Very similar to the male of *C. jugularis,* but distinguished by a patch or broad band of orpiment-orange next to the black chest. A male from Cuyo measures: Wing, 55: tail, 37; culmen from base, 21; bill from nostril, 17; tarsus, 16.

Female.—Similar to the female of *C. jugularis.* A female from Siquijor measures: Wing, 50; tail, 34; culmen from base, 19; bill from nostril, 15; tarsus, 15.

The *young male* gradually acquires the black chin and throat in the manner of *C. jugularis* and develops the orange patch at the same time.

"Ten males average: Length, 120; wing, 55; tail, 39; culmen, 22; tarsus, 15; middle toe with claw, 15. Three females, length, 109; wing, 51; tail, 36; culmen, 22; tarsus, 14; middle toe with claw, 14. Iris dark brown; bill, legs, feet, and nails black. Breeding in December in Palawan and in February in Culion. Called by natives of Palawan 'chee-wit'." (*Bourns and Worcester MS.*)

Genus ANTHREPTES Swainson, 1831.

Bill as long as head, slightly curved, and stouter than in the other Philippine genera of this family; nasal opercles without feathers; tail nearly square. Male with upper parts, sides of neck, and a line along each side of throat metallic colored; under parts without metallic feathers; female with shorter bill than the male and without metallic colors.

Species.

a^1. Chin and throat liver-brown.
  b^1. Larger; wing, 71 mm.; culmen from base, 20................ **chlorigaster** (p. 659)
  b^2. Smaller; wing, about 68 mm.; culmen from base, 18.
    c^1. Breast brighter yellow and general coloration brighter.
      d^1. Larger.
        e^1. Bill larger; under parts greener; sides of head less reddish. **wiglesworthi** (p. 660)
        e^2. Bill smaller; under parts yellower; sides of head more reddish. **cagayanensis** (p. 660)
      d^2. Smaller .... **malaccensis** (p. 659)
    c^2. Breast more greenish yellow; general coloration duller; pectoral tufts bright yellow .... **rhodolæma** (p. 661)
a^2. Chin and throat light gray.. **griseigularis** (p. 661)

671. ANTHREPTES CHLORIGASTER Sharpe.

GREEN-BELLIED SUNBIRD.

Anthreptes chlorigaster SHARPE, Trans. Linn. Soc. 2d. ser. Zool. (1877), 1, 342; McGREGOR and WORCESTER, Hand-List (1906), 100.

Anthothreptes malaccensis GADOW, Cat. Birds Brit. Mus. (1884), 9, 122 (part).

Basilan (*Everett, Steere Exp., Bourns & Worcester, McGregor*); Lubang (*McGregor*); Cebu (*Everett, Bourns & Worcester, McGregor*); Masbate (*Steere Exp., Bourns & Worcester*); Mindanao (*Everett, Steere Exp., Bourns & Worcester, Goodfellow*); Negros (*Steere, Everett, Steere Exp., Bourns & Worcester*); Panay (*Bourns & Worcester*); Romblon (*Bourns & Worcester*); Sibuyan (*Bourns & Worcester, McGregor*); Tablas (*Bourns & Worcester, Celestino*); Tawi Tawi (*Bourns & Worcester, Everett*); Ticao (*McGregor*).

Male.—Crown, mantle, and sides of neck metallic green changing to amethystine; back, rump, tail-coverts, and lesser wing-coverts metallic violet-blue; chin and throat liver-brown, bordered on each side by a narrow line of metallic green and violet-blue; remainder of under parts greenish yellow brightest in the middle of breast and abdomen; pectoral tufts lemon-yellow; wings blackish; primaries and secondaries edged with olive-green; alula and greater and median coverts burnt sienna; rectrices black, edged with metallic green which changes to amethystine. A male from Lubang measures: Wing, 71; tail, 46; culmen from base, 20; bill from nostril, 16.5; tarsus, 18. A male from Sibuyan, wing, 71; tail, 50; culmen from base, 22; bill from nostril, 17; tarsus, 19.

Female.—Above tea-green; below apple-green; center of breast and abdomen yellower; wings and tail dark brown, the feathers edged with dull golden olive. Bill shorter than in the male. A female from Basilan, wing, 66; tail, 42; culmen from base, 19; bill from nostril, 14; tarsus, 18.

"Ten males from Basilan average: Length, 129; wing, 69; tail, 45; culmen, 20; tarsus, 17; middle toe with claw, 26. Nine females, length, 127; wing, 66; tail, 42; culmen, 20; tarsus, 17; middle toe with claw, 21. Iris brownish red; legs and feet brownish to yellowish olive; nails black; bill dark brown to black. Food, in three cases, seeds." (*Bourns and Worcester MS.*)

672. ANTHREPTES MALACCENSIS (Scopoli).

BROWN-THROATED SUNBIRD.

Certhia malaccensis SCOPOLI, Del. Flor. et Faun. Insubr. (1786), 2, 91.

Anthreptes malaccensis SHELLEY, Monogr. Nectarin. pt. 6 (1878), 315, pl. 101, fig. 2; McGREGOR and WORCESTER, Hand-List (1906), 100.

Anthothreptes malaccensis GADOW, Cat. Birds Brit. Mus. (1884), 9, 122 (part); OATES, Fauna Brit. Ind. Bds. (1890), 2, 344, fig. 98 (bill enlarged).

Balabac (*Everett*); Calamianes (*McGregor & Worcester*); Palawan (*Steere, Everett, Whitehead, Platen, Steere Exp., Bourns & Worcester, Celestino, White*); Sibutu (*Everett*); Sitanki (*Bartsch*). Cochin China, Malay Peninsula, Siam, Java, Sumatra, Borneo, Flores.

Male.—Very similar to the male of *A. chlorigaster,* but smaller and with the breast and abdomen bright yellow. A male from Palawan measures: Wing, 68: tail, 48; culmen from base, 18; bill from nostril, 14; tarsus, 17.

Female.—Similar to the female of *A. chlorigaster* but smaller. A female from Palawan, wing, 62; tail, 42; culmen from base, 16; bill from nostril, 13; tarsus, 15.

"Ten males from Palawan average: Length, 131; wing, 66; tail, 47; culmen, 21; tarsus, 17; middle toe with claw, 16. Ten females, length, 123; wing, 61; tail, 42; culmen, 20; tarsus, 16; middle toe with claw, 15." (*Bourns and Worcester MS.*)

673. ANTHREPTES WIGLESWORTHI (Hartert).

WIGLESWORTH'S SUNBIRD.

Anthreptes malaccensis wiglesworthi HARTERT, Novit. Zool. (1902), **9**, 209.*
Anthreptes wiglesworthi McGREGOR and WORCESTER, Hand-List (1906), 100.

Bongao (*Everett*); Pangamian (*Bartsch*); Sulu (*Guillemard, Platen, Bourns & Worcester, Bartsch*); Tawi Tawi (*Everett*).

Hartert does not give a full description of this bird, but states that the sides of the head are almost as red as with *A. rhodolæma* and that the under side is like *A. chlorigaster.* I have not seen specimens of *Anthreptes* from any of the Sulu group of islands.

674. ANTHREPTES CAGAYANENSIS Mearns.

CAGAYAN SULU SUNBIRD.

Anthreptes cagayanensis MEARNS, Proc. Biol. Soc. Wash. (1905), **18**, 6; Proc. U. S. Nat. Mus. (1909), **36**, 445; McGREGOR and WORCESTER, Hand-List (1906), 100.

Tal-lu-gus-lú-gus, Moros of Cagayan Sulu.
Cagayan Sulu (*Mearns*).

"This is a slight insular form, most closely related to *Anthreptes wiglesworthi* (Hartert), from Sulu, P. I., from which it differs in being decidedly yellower below; the sides of the head are more reddish; the greater wing-coverts are narrowly edged with olive instead of broadly with ferruginous; and the bill is smaller. Iris hazel; bill all black; feet greenish olive, with under side of toes yellow." (*Mearns.*)

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* Hartert's remarks on *Anthreptes malaccensis wiglesworthi* are as follows: "Kopfseiten fast so roth wie bei *rhodolaema*, Unterseite wie bei *chlorigaster* (siehe oben). (Meinem zu früh verstorbenen ornithologischen Freunde Wiglesworth gewidmet, der mit A. B. Meyer zusammen in den 'Birds of Celebes' interessante Notizen über diese Gruppe gab.) Sulu Inseln. Typus Tring Museum, Sulu I. v. '83, Powell coll. Alle Stücke von den Sulu Inseln, die ich sah, sind ohne Zweifel zur gleichen Form zu rechnen."

"*Characters of adult female* * * *. Differs from females of *Anthreptes griseigularis* in the absence of the grayish white chin and throat; from *A. chlorogaster* in the yellower coloration of the middle under parts and greener upper parts; and from *A. malaccensis* only in the greater contrast of the canary-yellow of the middle under parts with the green color of the flanks, which in *A. cagayanensis* are pale oil-green, and in *A. malaccensis* olive-yellow. I have no female of *A. wiglesworthi* for comparison. Wing, 65; tail, 47; culmen (chord), 15.5; bill from nostril, 12; tarsus, 15.8." (*Mearns.*)

675. ANTHREPTES RHODOLÆMA Shelley.

RUFOUS-THROATED SUNBIRD.

Anthreptes rhodolæma SHELLEY, Monogr. Nectarin. pt. 6 (1878), 313, pts. 7 & 8, pl. 101, fig. 1; MCGREGOR and WORCESTER, Hand-List (1906), 100.

Anthothreptes malaccensis GADOW, Cat. Birds Brit. Mus. (1884), **9**, 122 (part).

Palawan (*Everett*). Borneo.

"Two males from Borneo have the whole breast olive-yellow like the abdomen and flanks; the pectoral tufts are bright yellow, and therefore very conspicuous; under wing-coverts pale buff, edged with yellow; median wing-coverts, scapulars, sides of head, and ear-coverts very deep maroon-red." (*Gadow.*)

676. ANTHREPTES GRISEIGULARIS Tweeddale.

GRAY-THROATED SUNBIRD.

Anthothreptus griseigularis TWEEDDALE, Proc. Zool. Soc. (1877), 830.

Anthreptes griseigularis SHELLEY, Monogr. Nectarin. pts. 9 & 10 (1879), 323, pl. 104; MCGREGOR and WORCESTER, Hand-List (1906), 100.

Anthothreptes griseigularis GADOW, Cat. Birds Brit. Mus. (1884), **9**, 126; WHITEHEAD, Ibis (1899), 231.

Luzon (*Everett, Whitehead, McGregor*); Mindanao (*Everett, Celestino*); Mindoro (*McGregor*); Sakuijok (*Everett*); Samar (*Bourns & Worcester, Whitehead*).

Male.—Similar to the male of *A. chlorigaster*, but chin and throat light gray (gray 6 to gray 10 of Ridgway's Nomenclature of Colors); breast and abdomen much paler than in *A. chlorigaster;* pectoral tufts pale lemon-yellow. A male from Bataan Province, Luzon, measures: Length, 127; wing, 68; tail, 41; culmen from base, 20; bill from nostril, 15; tarsus, 17. A male from Mindanao, wing, 63; tail, 38; culmen from base, 18; bill from nostril, 14; tarsus, 16.5.

Female.—Green like the female of *A. chlorigaster* but paler. A female from Luzon, wing, 59; tail, 35; culmen from base, 19; bill from nostril, 15; tarsus, 15.

Subfamily ARACHNOTHERINÆ.

Genus ARACHNOTHERA Temminck, 1826.

Bill twice as long as head and much curved; nasal opercles unfeathered; wing moderate in length; first primary equal to about one-half the second; tail nearly square. Colors olive-green, gray, and yellow, no metallic feathers. Members of this genus are easily recognized by their very long bills.

Species.

a^1. Forehead, cheeks, ear-coverts, and gape-region feathered.
  b^1. Smaller; exposed culmen, about 30 mm.; crissum lemon-yellow. **flammifera** (p. 662)
  b^2. Larger; exposed culmen, about 35 mm.; crissum pale gray. **dilutior** (p. 663)
a^2. Forehead, cheeks, ear-coverts, and gape-region naked.. **philippinensis** (p. 663)

677. ARACHNOTHERA FLAMMIFERA Tweeddale.

FLAME-TUFTED SPIDER HUNTER.

Arachnothera flammifera TWEEDDALE, Proc. Zool. Soc. (1878), 343; SHELLEY, Monogr. Nectarin. pts. 9 & 10 (1879), 361, pl. 115; GADOW, Cat. Birds Brit. Mus. (1884), 9, 104; WHITEHEAD, Ibis (1899), 230; MCGREGOR and WORCESTER, Hand-List (1906), 100.

Basilan (*Steere Exp., Bourns & Worcester, Celestino*); Bohol (*McGregor*); Leyte (*Everett, Steere Exp., Whitehead*); Mindanao (*Platen, Celestino*); Samar (*Steere Exp., Bourns & Worcester, Whitehead*).

Male.—Above olive-green, the bases of the crown-feathers dark brown; chin, throat, and breast light gray, washed with pale olive-green; abdomen, flanks, and crissum bright lemon-yellow; thighs gray, washed with yellow; a small tuft of feathers on each side of breast cadmium-yellow; wing-feathers blackish brown edged with olive-green; rectrices blackish, edged with olive-green and, except the middle pair, tipped with white and gray; axillars and wing-lining slightly washed with pale yellow. A male from Basilan measures: Length, 152; wing, 64; tail, 43; culmen from base, 35; bill from nostril, 28; tarsus, 15.

Female.—Slightly smaller than the male and without the yellow pectoral tufts. A female from Basilan measures: Wing, 59; tail, 38; culmen from base, 32; bill from nostril, 26; tarsus, 15.

"Four males average: Length, 141; wing, 62; tail, 45; culmen, 34; tarsus, 15; middle toe with claw, 16. A female, length, 148; wing, 62; tail, 41; culmen, 41; tarsus, 16; middle toe with claw, 16. Iris reddish brown; legs and feet slate-blue; upper mandible black, lower black at tip, gray at base." (*Bourns and Worcester MS.*)

678. ARACHNOTHERA DILUTIOR Sharpe.

PALE SPIDER HUNTER.

Arachnothera dilutior SHARPE, Nature (1876), 14, 298; SHELLEY, Monogr. Nectarin. pt. 3 (1877), 363, pl. 116; GADOW, Cat. Birds Brit. Mus. (1884), 9, 105; MCGREGOR and WORCESTER, Hand-List (1906), 100.

Palawan (*Steere, Everett, Whitehead, Platen, Steere Exp., Bourns & Worcester. Celestino, White*).

Male.—Crown olive-brown; ear-coverts leaden gray; remainder of upper parts olive-green; chin, throat, and chest light gray; lower breast, sides, and abdomen pale green; crissum very pale gray; pectoral tufts chrome-yellow; wings and tail blackish brown, the feathers edged with olive-green. A male measures: Wing, 70; tail, 48; culmen from base, 37; bill from nostril, 31; tarsus, 17.

Female.—Similar to the male. Wing, 63; tail, 44; culmen from base, 33; bill from nostril, 28; tarsus, 17.

In this species the yellow pectoral tufts are present in both sexes and are of a lighter yellow than in the male of *A. flammifera.*

"Ten males average: Length, 165; wing, 69; tail, 48; culmen, 40; tarsus, 17; middle toe with claw, 23. Ten females, length, 144; wing, 61; tail, 42; culmen, 35; tarsus, 16; middle toe with claw, 16. Iris brown, legs, feet, and nails slaty blue; bill black except base of lower mandible, which is gray. Food spiders and insects." (*Bourns and Worcester MS.*)

679. ARACHNOTHERA PHILIPPINENSIS (Steere).

NAKED-FACED SPIDER HUNTER.

Philemon philippinensis STEERE, List Birds & Mams. Steere Exped. (1890), 21.

Arachnothera claræ PLATEN, Jour. für Orn. (1890), 148.

Arachnothera philippinensis GRANT, Ibis (1897), 237; WHITEHEAD, Ibis (1899), 231; MCGREGOR and WORCESTER, Hand-List (1906), 100.

Leyte (*Whitehead*); Mindanao (*Platen*); Samar (*Steere Exp., Whitehead*).

"*Adult female.*—Above olive-green; wings brown, edged with olive-yellow; under surface ashy olive, washed with olive-green; forehead, space about gape, in front of eye, and ear-coverts bare. Length, 168; wing, 81; tail, 46; culmen, 39." (*Steere.*) "Iris and bill black; feet pinkish brown; gape brilliant white; bare skin on face pinkish yellow." (*Whitehead.*)

Grant states that the plumage is identical in the two sexes of this species.

Family **MOTACILLIDÆ.**

Bill slender and nearly straight, a small notch near the subacute tip; nostrils oval and exposed; rictal bristles inconspicuous with but two or three of moderate length; true first (outermost) primary wanting; first, second, and third primaries nearly equal and longest; inner secondaries (tertials) very long, not much shorter than primaries. Tail variable in length, but nearly square at the tip.

Genera.

a^1. Plumage not streaked; under parts white with, or without, black on throat and chest; tail longer and extending far beyond the toes.
  b^1. Claw of hind toe not longer than the toe itself.
    c^1. Tail longer than wing; upper parts ashy gray.................. **Motacilla** (p. 664)
    c^2. Tail a little shorter than wing; upper parts with an olivaceous wash. **Dendronanthus** (p. 668)
  b^2. Claw of hind toe much longer than the toe itself; tail nearly as long as wing; under parts mostly yellow.. **Budytes** (p. 666)
a^2. Plumage streaked with blackish brown both above and below; tail much shorter than the longest secondaries.. **Anthus** (p. 669)

Genus MOTACILLA Linnæus, 1758.

Tail decidedly longer than wing; rectrices slender, two outermost pairs nearly all white; claw of hind toe not longer than the toe itself. Plumage of upper parts largely gray; under parts black and white, or black and yellow, never streaked.

Species.

a^1. Under parts nearly all white; chest and throat more or less black. **ocularis** (p. 664)
a^2. Under parts nearly all yellow; chin and throat black in summer. **melanope** (p. 665)

680. MOTACILLA OCULARIS Swinhoe.

STREAK-EYED WAGTAIL.

Motacilla ocularis SWINHOE, Ibis (1860), 55; SHARPE, Cat. Birds Brit. Mus. (1885), **10**, 471, pl. 4, figs. 5 & 6; OATES, Fauna Brit. India Birds (1890), **2**, 289; WHITEHEAD, Ibis (1899), 237 (migration in northern Luzon); MCGREGOR and WORCESTER, Hand-List (1906), 100.

Balabac (*Everett*); Calayan (*McGregor*); Lubang (*McGregor*); Luzon (*Everett, Whitehead, Bartsch*); Palawan (*Everett, Bourns & Worcester, White*). Aleutian Islands?, northeastern Siberia, Kamchatka, China; Burma in winter; accidental in Lower California.

Adult summer plumage.—"In normal full summer plumage the forehead, anterior part of crown, a broad supercilium, cheeks, ear-coverts, and sides of the neck white; remainder of crown and nape, a streak from the lores through the eye and over the ear-coverts, chin, throat, and upper breast black; remainder of lower plumage white, shaded with gray on the flanks; upper plumage gray, turning to black on the upper tail-coverts; lesser wing-coverts gray; median coverts dark brown, broadly tipped with white; greater coverts with the outer webs and a considerable portion of the inner white; quills dark brown, edged with white, the later secondaries very broadly so; the two outer pairs of tail-feathers nearly entirely white, the others black." (*Oates.*)

Winter plumage.—A female, taken in Calayan Island in October, 1903, resembles the adult in summer as described above, but the chin and middle of throat are white, the black patch of the chest being crescentic in shape with its horns extending up the sides of the throat. Iris brown; bill, legs, and nails black. Length, 200; wing, 90; tail, 92; culmen from base, 15; tarsus, 22.

Young.—A female from Lubang Island, taken in November, 1902, differs from the preceding specimen in having the entire top of head and back drab-gray instead of black and ashy gray; the dark line through eye drab-gray like the crown; the white forehead and supercilium but faintly indicated by the white bases of the feathers.

The streak-eyed wagtail is of somewhat rare occurrence in the Philippine Islands; it is easily distinguished by its black and white under parts.

"A small flock of *M. ocularis* was observed in Palawan in December, 1891, and two specimens were obtained. They are both young birds in first winter plumage. A male measures: Length, 178; wing, 90; tail, 97; culmen, 16.5; tarsus, 24; middle toe with claw, 20. A female, length, 159; wing, 77; tail, 72; tarsus, 24; middle toe with claw, 20." (*Bourns and Worcester MS.*)

681. MOTACILLA MELANOPE Pallas.

GRAY WAGTAIL.

Motacilla melanope PALLAS, Reise Russ. Reichs (1776), 3, 696; SHARPE, Cat. Birds Brit. Mus. (1885), 10, 497; HUME, Oates ed. Nests & Eggs Ind. Bds. (1890), 2, 207; WHITEHEAD, Ibis (1899). 237; MCGREGOR and WORCESTER, Hand-List (1906), 101.

Tam-ba-yuc-yuc, Ticao, used for *Anthus rufulus* also; *a-na-noc-yod,* Siquijor; *ba-ti-cu-lo,* Manila.

Balabac (*Everett*); Basilan (*Steere Exp., Bourns & Worcester*); Bohol (*McGregor*); Cagayan Sulu (*Mearns*); Calamianes (*McGregor*); Calayan (*McGregor*); Catanduanes (*Whitehead*); Cebu (*Meyer, Everett, McGregor*); Guimaras (*Steere Exp.*); Leyte (*Everett*); Lubang (*McGregor*); Luzon (*Meyer, Bourns & Worcester, Whitehead, McGregor, Bartsch*); Maestre de Campo (*McGregor & Worcester*);

Marinduque (*Steere Exp.*) ; Masbate (*Bourns & Worcester*) ; Mindanao (*Murray, Steere Exp., Mearns*) ; Mindoro (*Schmacker, Bourns & Worcester, Whitehead, McGregor*) ; Negros (*Steere Exp., Bourns & Worcester, Keay*) ; Palawan (*Everett, Steere Exp., Bourns & Worcester, White*) ; Panay (*Steere Exp., Bourns & Worcester*) ; Polillo (*McGregor*) ; Romblon (*Bourns & Worcester*) ; Samar (*Steere Exp.*) ; Sibay (*McGregor & Worcester*) ; Sibuyan (*Bourns & Worcester*) ; Siquijor (*Celestino*) ; Sulu (*Bourns & Worcester*) ; Tablas (*Bourns & Worcester*) ; Tawi Tawi (*Bourns & Worcester*) ; Ticao (*McGregor*) ; Verde (*McGregor*). Europe and Siberia; in winter to India, Burmese countries, Malay Peninsula and Indo-Malay islands.

Male (*Mindoro, May, 1905*).—Above ashy gray, with a slight olivaceous wash on back; rump and tail-coverts bright greenish yellow; lores black; line from nostril over lores, eye, and ear-coverts to nape white; side of head ashy gray; a line from base of lower mandible along side of throat white; chin and throat black, the feathers fringed with white; remainder of under parts canary-yellow, paler on sides and flanks; wing-feathers blackish brown; secondaries with a white spot on outer web, partly concealed by the greater coverts; tertials blacker than primaries and with inner webs largely white and outer webs margined with white or pale yellow; outermost pair of rectrices entirely pure white, next two pairs white with part of the outer web black, remaining rectrices black with a fringe of greenish yellow on outer webs. Length, 190; wing, 80; tail, 87; culmen from base, 13; tarsus, 20.

In *winter plumage* the chin and throat are white, more or less spotted with black; or else, the entire under parts are white mixed with yellow, except the tail-coverts which seem to remain entirely white. The latter plumage appears to be that of the young. The sexes are similar in colors, but the breeding plumage of the female is said to be paler than that of the male with less black on the throat.

"The gray wagtail is common and a source of constant irritation when one is hunting the little forest kingfishers along small fresh-water streams. *M. melanope* feeds among the pebbles and is always flying up when least wanted, alarming the more valuable birds. Three males average: Length, 185; wing, 80; tail, 92; culmen, 17; tarsus, 20; middle toe with claw, 15. Two females, length, 189; wing, 81; tail, 96; culmen, 17.5; tarsus, 20; middle toe with claw, 17.5. Iris dark brown; legs, feet, and nails dark brown to black; bill black, except base of lower mandible which is gray." (*Bourns and Worcester MS.*)

Genus BUDYTES Cuvier, 1817.

This genus differs from *Motacilla* in having the tail shorter than the wing and the claw of hind toe much longer than the toe itself. The under parts are yellow in summer plumage, white in winter, and rarely without traces of yellow.

682. BUDYTES LEUCOSTRIATUS Homeyer.*

SIBERIAN YELLOW WAGTAIL.

Budytes leucostriatus HOMEYER, Jour. für Orn. (1878), 128; MCGREGOR and WORCESTER, Hand-List (1906), 101.

Motacilla flava SHARPE, Cat. Birds Brit. Mus. (1885), 10, 516, pl. 6, figs. 3 to 6 (part); WHITEHEAD, Ibis (1899), 237 (migration).

Du-uad. Batan.

Balabac (*Everett*); Basilan (*McGregor*); Batan (*McGregor*); Bohol (*Everett*); Cagayan Sulu (*Mearns*); Calayan (*McGregor*); Camiguin N. (*McGregor*); Catanduanes (*Whitehead*); Cebu (*McGregor*); Lubang (*McGregor*); Luzon (*Everett, Bourns & Worcester, Whitehead,* (*McGregor*); Masbate (*McGregor*); Mindanao (*Mearns*); Negros (*Bourns & Worcester*); Palawan (*Platen, Whitehead, Everett, Steere Exp., Bourns & Worcester, Celestino, White*); Polillo (*McGregor*); Sulu (*Guillemard, Bourns & Worcester*); Ticao (*McGregor*). Eastern Siberia and Kamchatka; eastern China and the Moluccas in winter.

Male in spring plumage (*Manila, April, 1904*).—Above olive-yellow; tail-coverts brown edged with olive-yellow; top of head and nape cinereous, the ear-coverts a little darker; lores and space under eye blackish; a wide line from nostril over eye to nape white; sides of neck and of chest olive-yellow; chin white; remainder of under parts canary-yellow, or light lemon-yellow, with some obscure dusky spots on chest, crissum palest; thighs ashy gray; wings dark seal-brown, many of the feathers edged with yellowish or buffy white; tips of greater and median coverts forming bars; two outermost pairs of rectrices nearly all white, the others seal-brown with narrow olivaceous edges. Length, 165; wing, 81; tail, 72; culmen from base, 15; tarsus, 25.

The *female* is duller in color; the upper parts browner and the under parts paler yellow. A female from Calayan Island measures: Wing, 74; tail, 70; culmen from base, 13; tarsus, 25.

Winter plumage.—Most of the specimens taken in the Philippines have the crown, sides of head, and upper parts dull brown, sepia to hair-brown, at times with traces of olive-yellow on the back; the long white supercilium is always present; the under parts are mostly white, chest more or less dusky and with spots or irregular patches of yellow.

"Much less common than *M. melanope.* Three males average: Length, 169; wing, 80; tail, 76; culmen, 17; tarsus, 25; middle toe with claw, 20.5. A female measures, length, 165; wing, 77; tail, 73; tarsus, 24; middle toe with claw, 21.5. Legs, feet, and nails dark brown to black; bill black, except base of lower mandible which is gray." (*Bourns and Worcester MS.*)

At times I have found large flocks of this yellow wagtail in the vicinity of Manila, but it is usually less abundant than the gray wagtail.

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* Philippine specimens of this genus may be the recently described *Budytes flavus alascensis* but no specimens of that race are available for comparison. Cf. Ridgway, Bds. North and Middle America (1904), 3, 8 and 10.

Genus DENDRONANTHUS Blyth, 1844.*

The only member of this genus is not greatly different from the *Motacillæ,* but the tail is slightly shorter than the wing, being intermediate in length between the tertials and primaries; the claw of hind-toe is short as in *Motacilla;* under parts white with a black band across the chest; upper parts with an olivaceous wash; wing-feathers blackish brown; median and greater coverts tipped with white, forming two conspicuous wing-bars; primaries and secondaries with white spots on outer webs, forming two more bars. Of this genus Oates says: "The structure of the tail in this genus is peculiar, inasmuch as the middle pair of feathers is very markedly shorter than the others and of a different color."

683. **DENDRONANTHUS INDICUS** (Gmelin).

FOREST WAGTAIL.

Motacilla indica GMELIN, Syst. Nat. (1788), **1**, 962.

Limonidromus indicus SHARPE, Cat. Birds Brit. Mus. (1885), **10**, 532; OATES, Fauna Brit. Ind. Bds. (1890), **2**, 300, fig. 82 (head).

Limondromus indicus McGREGOR and WORCESTER, Hand-List (1906), 101 (error).

Balabac (*Everett*); Calayan (*McGregor*). Eastern Siberia, northern China, Indian Peninsula; in winter to Ceylon, Andaman Islands, Burmese countries, Cochin China, Malay Peninsula, and Java.

Adult (*sexes similar*).—Above olive-brown; tail-coverts blackish brown; line from base of bill over eyes to nape whitish; line through eye brown; cheeks and ear-coverts whitish; under parts white, breast tinged with yellow; a broad crescentic band across chest black; behind this indications of another band which is broken in the middle; sides, flanks, and thighs washed with drab-gray; wing-feathers mostly blackish brown, their tips olive-gray; lesser and median coverts with wide yellowish white tips, forming two bars; outer webs of primaries and secondaries with yellowish white spots, forming two shorter bars; two outer pairs of rectrices extensively white; next pair tipped with white; central pair olive-gray; the others blackish brown.

The measurements of the male, as given by Sharpe and changed to millimeters, follow: Length, 168; wing, 79; tail, 72; culmen, 14; tarsus, 22. A female from Calayan Island measures: Wing, 78; tail, 71; culmen from base, 15; tarsus, 22.

The forest wagtail is the rarest representative of its family in the Philippines, only two specimens having been taken here. It may be recognized at once by the two white wing-bars.

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* Cf. Richmond, *Proc. U. S. Nat. Mus.* Washington (1903), **26**, 504.

Genus ANTHUS Bechstein, 1807.

Tail shorter than the tertials: hind-toe usually shorter than its claw. Plumage various shades of brown, streaked and spotted with black and dark brown, never extensively yellow, black, nor pure white.

Species.

a^1. Hind toe and its claw about equal in length; upper plumage washed with olivaceous, the dark shaft-streaks poorly defined; breast and sides heavily spotted and streaked with blackish brown .... **hodgsoni** (p. 669)

a^2. Hind toe decidedly shorter than its claw; upper parts with heavy streaks of blackish brown, the margins of the feathers various shades of buff, ocherous, and rusty brown, but not washed with olivaceous.

  b^1. Dark streaks of under parts few and narrow; sides of body uniform in color or with obsolete dusky streaks.

    c^1. Tail much longer, about 85 mm.; wing, 90 or more; tarsus, 30 to 33. **richardi** * (p. 670)

    c^2. Tail much shorter, about 65 mm.; wing, about 75; tarsus, 28. **rufulus** (p. 671)

  b^2. Dark streaks of under parts numerous and heavy on breast, and extending over sides of abdomen and breast.

    c^1. Dark streaks on breast broader and more numerous; some of the interscapulars with whitish margins forming a conspicuous light streak on each side of back .... **gustavi** (p. 672)

    c^2. Dark streaks on breast, in the adult at least, narrower and less numerous; upper parts less boldly streaked, and the light edges of interscapulars less conspicuous; chin and throat buff in the young, vinaceous-cinnamon or dark ochraceous in the adult.. **cervinus** (p. 673)

684. ANTHUS HODGSONI Richmond.

SPOTTED TREE PIPIT.

Anthus maculatus (not *Motacilla maculata* Gmelin) HODGSON, in Gray's Zool. Miscl. (1844), 83; SHARPE, Cat. Birds Brit. Mus. (1885), **10**, 547; HUME, Nests & Eggs Ind. Bds. (1890), **2**, 209; WHITEHEAD, Ibis (1899), 237 (habits); MCGREGOR and WORCESTER, Hand-List (1906). 101.

Anthus hodgsoni RICHMOND, Publ. Carnegie Inst. Wash. (1907), no. 54, 493.

Apo (*Celestino*); Calayan (*McGregor*); Luzon (*Everett, Whitehead, McGregor, Bartsch*); Mindanao (*Goodfellow*); Palawan (*Everett*). Eastern Siberia, China, Japan, Indo-Burmese countries, Liu Kiu Islands, and the Indian Peninsula.

Adult in fresh plumage.—Above dark olive-green; top of head streaked with blackish brown; feathers of back with blackish shaft-lines, much less conspicuous than in *A. gustavi* or *A. rufulus;* lower back, rump, and tail-coverts uniform olive-green; side of forehead and supercilium buff, forming a line which becomes white over ear-coverts; lores blackish; subocular region and ear-coverts buff, mottled with dark brown; chin, throat, and chest pale buff, separated from the buff jaw by a blackish malar line; lower breast, abdomen, and crissum white; flanks and thighs dark buff; breast, sides, and flanks marked with large black spots, which are triangular on chest, and elongate on sides and flanks; wing-feathers blackish, edged with olive; tips of median and greater coverts buffy, forming two bars; rectrices blackish, two or three outer pairs tipped with white. In summer the plumage has become much worn and the dark markings are more conspicuous. A male taken in Luzon in November measures: Length, 152; wing, 84; tail, 60; culmen from base, 14; tarsus, 21; hind toe with claw, 15. A female in worn plumage from Benguet Province, Luzon, measures: Wing, 80; tail, 57; culmen from base, 14; tarsus, 21; hind toe with claw, 17. The diagnostic characters of this species are the olivaceous upper parts, the large triangular spots on the breast, and the short claw of the hind toe.

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* In the Catalogue of the Birds in the British Museum this species falls under "*a*. With the hind claw decidedly shorter than the hallux." but in the figures of the foot in the Catalogue and in the Fauna of British India the claw is decidedly longer than the hallux, and Sharpe (p. 565) says: "Hind claw long and straight, a trifle shorter than hind toe, but sometimes longer."

685. ANTHUS RICHARDI Vieillot.

RICHARD'S PIPIT.

Anthus richardi VIEILLOT, Nouv. Dict. d'Hist. Nat. (1818), **26**, 491; SHARPE, Cat. Birds Brit. Mus. (1885), **10**, 564 (figure of foot); OATES, Fauna Brit. Ind. Bds. (1890), **2**, 307, fig. 85 (foot); MCGREGOR and WORCESTER, Hand-List (1906), 102.

Balabac (*Everett*). Central and eastern Asia and India; in winter to southern China, Burmese countries, Ceylon, western and southern Europe; occasional in the British Islands.

Adult.—"Upper plumage fulvous-brown, the feathers centered with blackish, the rump more uniform; wings dark brown margined with fulvous; tail dark brown with pale margins, the outermost feather almost entirely white, the penultimate with an oblique portion of the inner web, about an inch and a half [38 mm.] in length, also white; supercilium and lower plumage pale fulvous, the sides of the throat and fore neck and the whole breast streaked with dark brown; sides of the body darker fulvous, with a few indistinct streaks. Bill brown, yellowish at base of lower mandible; mouth yellow; iris brown, legs flesh-color, the claws darker. Length, about 190; tail, 86; wing, 94; tarsus, 30; bill from gape, 22; hind claw, about 20." (*Oates.*)

686. ANTHUS RUFULUS Vieillot.

INDIAN PIPIT.

Anthus rufulus VIEILLOT, Nouv. Dict. d'Hist. Nat. (1818), 26, 494; SHARPE, Cat. Birds Brit. Mus. (1885), 10, 574; HUME, Oates ed. Nests & Eggs Ind. Bds. (1890), 2, 213; WHITEHEAD, Ibis (1899), 238; MCGREGOR and WORCESTER, Hand-List (1906), 102.

Corydalla lugubris TWEEDDALE, Proc. Zool. Soc. (1877), 547.

Tam-ba-yuc-yuc, Ticao, used for *Motacilla melanope* also; *a-la-lac-sing,* Siquijor. Bantayan (*McGregor*); Batan (*McGregor*); Bohol (*Everett, Steere Exp., McGregor*); Calamianes (*Bourns & Worcester, McGregor*); Calayan (*McGregor*); Camiguin N. (*McGregor*); Cebu (*Everett, Bourns & Worcester*); Fuga (*McGregor*); Guimaras (*Meyer, Murray, Steere Exp., Bourns & Worcester*); Leyte (*Steere Exp.*); Lubang (*McGregor*); Luzon (*Cuming, Everett, Bourns & Worcester, Whitehead, McGregor, Bartsch*); Maestre de Campo (*McGregor & Worcester*); Masbate (*Bourns & Worcester, McGregor*); Mindanao (*Everett, Bourns & Worcester, Celestino*); Mindoro (*Steere Exp., Schmacker, Bourns & Worcester*); Negros (*Steere, Everett, Steere Exp., Bourns & Worcester, Celestino*); Palawan (*Everett, Celestino, White*); Panaon (*Everett*); Panay (*Murray, Steere Exp., Bourns & Worcester*); Polillo (*McGregor*); Romblon (*Bourns & Worcester, McGregor*); Samar (*Steere Exp.*); Semirara (*McGregor & Worcester*); Sibuyan (*Bourns & Worcester, McGregor*); Siquijor (*Steere Exp., Bourns & Worcester, Celestino*); Tablas (*Bourns & Worcester, Celestino*); Ticao (*McGregor*). Africa, Malay Peninsula, Burmese countries, India, Ceylon, Sumatra, Java, Borneo.

Adult in fresh plumage.—Above sandy buff, nearly uniform on rump and tail-coverts; upper back and top of head with dark brown shaft-lines producing, on the head at least, a decidedly streaked appearance; lores blackish; supercilium, from bill to nape, light buff; subocular space buff, bounded below by a line of dark brown; malar line dark brown; ear-coverts sandy buff; under parts cream-buff; sides and flanks sandy buff; an ill-defined band across chest sandy buff, the feathers with narrow, mesial, blackish streaks; wing-feathers and rectrices blackish brown, more or less widely edged and tipped with various shades of buff; two outer pairs of rectrices largely white. A female from Culayan Island measures: Wing, 80; tail, 66; culmen from base, 16; tarsus, 28; hind toe with claw, 24. A female from Lubang measures: Wing, 79; tail, 62; culmen from base, 16; tarsus, 27; hind toe with claw, 22.

As the plumage becomes worn the supercilium, subocular region, and under parts fade to white, and the pectoral band fades to light buff.

This species is said to resemble *A. richardi* except in being smaller; it is easily distinguished from any of the other pipits found in the Philippines by the scantily streaked chest and by the uniformly colored sides and flanks. Furthermore it is the most common species, outnumbering, in individuals, all the other species combined.

"Enormously abundant in the open fields; it is resident throughout the year and breeds. Four males average: Length, 167; wing, 80; tail, 65; culmen, 18; tarsus, 28; middle toe with claw, 23. Iris dark brown; legs and feet dirty yellow, nails darker; upper mandible dark brown to black, under mandible light brown." (*Bourns and Worcester MS.*)

687. **ANTHUS GUSTAVI** Swinhoe.

PETCHORA PIPIT.

Anthus gustavi SWINHOE, Proc. Zool. Soc. (1863), 90; SHARPE, Cat. Birds Brit. Mus. (1885), **10**, 613; WHITEHEAD, Ibis (1899), 237; MCGREGOR and WORCESTER, Hand-List (1906), 102.

Basilan (*Steere, Steere Exp., Bourns & Worcester, McGregor*): Bohol (*McGregor*); Cagayancillo (*McGregor*); Calayan (*McGregor*); Cebu (*McGregor*); Guimaras (*Steere Exp.*); Leyte (*Steere Exp.*); Lubang (*McGregor*); Luzon (*Othberg, Heriot, Bourns & Worcester, McGregor*); Maestre de Campo (*McGregor & Worcester*); Masbate (*Bourns & Worcester*); Mindanao (*Goodfellow, Celestino*); Mindoro (*McGregor*); Negros (*Whitehead*); Palawan (*Whitehead, Platen, Bourns & Worcester*); Polillo (*McGregor*); Romblon (*Bourns & Worcester*); Sibuyan (*Bourns & Worcester*); Siquijor (*Celestino*); Sulu (*Bourns & Worcester*); Tawi Tawi (*Bourns & Worcester*). Siberia, Kamtchatka, Commander Islands, Celebes; in winter to Borneo and the Molucca Islands; China during migration.

Adult.—Top of head, neck, and back tawny buff, each feather with a wide mesial streak of blackish brown; on each side of mantle a series of feathers each having either the inner or outer web buffy white, forming on each side a conspicuous, but not well-defined, whitish stripe; rump and tail-coverts darker than back, near raw-umber, with narrower blackish shaft-streaks; supercilium light buff, but not forming a well-defined line; ear-coverts tawny; malar stripe buff, bounded below by a narrow blackish line; under parts white with a wash of buff across the chest and with bold blackish streaks on breast, sides, and flanks; wing-feathers blackish brown, edged with dark buff; median and greater coverts tipped with white, forming two wing-bars; rectrices blackish brown, the two outer pairs with considerable white on the inner webs. A male from Calayan Island measures: Wing, 85; tail, 56; culmen from base, 16; tarsus, 22; hind toe with claw, 20. A female from northern Mindanao, wing, 80; tail, 56; culmen from base, 15; tarsus, 22; hind toe with claw, 20.

Young birds differ from the adults in having the chin and throat spotted with blackish brown.

The diagnostic characters of *Anthus gustavi* are the heavy streaks on breast and sides, and the whitish streaks on the sides of the back.

The Petchora pipit is usually found skulking on the ground in forest; it is never seen in flocks.

688. ANTHUS CERVINUS (Pallas).

RED-THROATED PIPIT.

Motacilla cervina PALLAS, Zoogr. Rosso-Asiat. (1811), **1**, 511.

Anthus cervinus SHARPE, Cat. Birds Brit. Mus. (1885), **10**, 585; WHITEHEAD, Ibis (1899), 238 (habits); MCGREGOR and WORCESTER, Hand-List (1906), 102.

Calayan (*McGregor*); Luzon (*Whitehead*); Mindanao (*Steere Exp.*); Palawan (*Everett, Celestino*). Alaska, Kurile Islands, Asia, Europe, England; in winter to China and Indo-Burmese countries, Persia and northwestern India, Formosa, Hainan, and northern Africa, accidental in Lower California.

Adult.—Above sandy gray, somewhat similar to *A. gustavi,* but lighter and grayer without the whitish streaks on the sides of the back; head streaked with dark brown; feathers of back and rump with broad mesial streaks of blackish brown; long and broad superciliary stripe, lores, ear-coverts, suborbital region, chin, throat, and chest vinaceous-cinnamon or vinaceous-buff; remainder of under parts light buff; sides, flanks, and, in many specimens, the breast, streaked with blackish brown; wings and tail dark brown, most of the feathers with white or sandy buff edges; greater and median coverts with whitish tips forming two bars; two outer pairs of rectrices with wide white tips.

A male from Calayan Island measures: Length, 145; wing, 85; tail, 61; culmen from base, 14; tarsus, 22; hind toe with claw, 20. A female from the same locality, wing, 79; tail, 56; culmen from base, 13; tarsus, 21; hind toe with claw, 20.

Immature birds have less vinaceous color about the head and more black stripes on the chest; still younger birds have lores, supercilium, malar region, chin, and throat buff with no trace of vinaceous, and the sides of throat are thickly spotted with blackish brown. This last plumage resembles some plumages of *A. gustavi,* but the latter species seems always to have a larger bill and distinct white or pale buff lines on the sides of the back.

The red-throated pipit in adult summer plumage is a very handsome species. It is found in the Philippine Islands in winter only and then but rarely.

Family **ALAUDIDÆ**.

Bill stout, first primary very short; tertials shorter, or but little longer, than secondaries; tail moderate in length; two outer rectrices partly white as in *Anthus;* tarsus scutellate both in front and behind; claw of hind toe longer than the toe itself; upper plumage brown and the breast streaked.

Genera.

a^1. Bill more slender; first primary minute, shorter than primary-coverts; claw of hind toe more than one-half the length of tarsus............ **Alauda** (p. 674)

a^2. Bill much stouter; first primary longer than the primary-coverts; claw of hind toe not more than one-half the length of tarsus............ **Mirafra** (p. 675)

Genus ALAUDA Linnæus. 1758.

Bill similar to that of *Anthus,* but stouter and blunter; nostrils protected by short feathers and several hairs; rictal bristles few and short; first primary shorter than primary-coverts; second primary nearly as long as third, which is equal to fourth; tertials slightly longer than secondaries; claw of hallux slender, nearly straight, and equal to more than two-thirds the length of tarsus.

689. ALAUDA WATTERSI Swinhoe.

FORMOSAN SKYLARK.

Alauda wattersi SWINHOE, Proc. Zool. Soc. (1871), 389; MCGREGOR and WORCESTER, Hand-List (1906), 103.

Alauda gulgula SHARPE, Cat. Birds Brit. Mus. (1890), 13, 575 (part); GRANT and WHITEHEAD, Ibis (1898), 244 (eggs); WHITEHEAD, Ibis (1899), 243 (nest).

Bohol (*Everett, McGregor*); Luzon (*Möllendorff, Whitehead, McGregor, Bartsch*); Sibuyan (*McGregor*); Ticao (*McGregor*). Formosa and the Pescadores.

Adult.—Upper parts blackish brown, streaked with ochraceous-buff; lores and superciliary stripe from bill to nape pale buff or whitish; ear-coverts dusky; malar region and sides of throat marked with small blackish spots; under parts white; chest buff with short blackish shaft-lines; sides and flanks buff, the latter obscurely streaked with dark brown; wing-feathers and rectrices dark brown, edged with cream-buff or ruddy buff; outermost pair of rectrices entirely white; the next pair with their outer webs white.

In freshly molted individuals the feathers of upper parts are rounded at the ends and fringed with white, producing a squamate appearance, which disappears as the plumage becomes worn; feathers of occiput somewhat lengthened forming a crest, and the feathers of sides of nape forming short ear-tufts.

A *male* in fresh plumage measures: Length, 150; wing, 85; tail, 54; culmen from base, 15; depth of bill at nostril, 5; tarsus, 23; hind toe with claw, 24. A *female* in worn plumage measures: Wing, 81; tail, 48; culmen from base, 13; depth of bill at nostril, 5; tarsus, 23; hind toe with claw, 22.

This species is very similar to the European skylark from which it is distinguished by its much smaller size.

Three eggs of the Formosan skylark from Isabela Province, Luzon, collected by Whitehead on May 25, 1894, are thus described:

"Shape ovate. Ground-color very pale greenish white, variously mottled and spotted with pale french-gray under-markings and brown upper-markings. In one egg the markings are chiefly concentrated into a zone round the middle of the shell; in the other two they are pretty equally scattered over the whole shell. Measurements 21 mm. by 16 mm."

A set of two eggs is "Much like the above and equally spotted all over, but the over-markings are of a more yellowish brown. Measurements 22 mm. by 15 mm.

"This lark was nesting in an open bit of country thinly covered with tufts of grass, beneath which the nests were concealed. Fully fledged young birds of this species were also observed on the same date." (*Grant and Whitehead.*)

Genus MIRAFRA Horsfield, 1821.

Bill very stout, almost finch-like, its depth at nostril almost as great as its length from nostril and equal to about two-thirds of the hind claw; nostrils exposed; rictal bristles short; tertials shorter than secondaries; first primary equal to one-third of the second, the latter about equal to the third, fourth, and fifth; hallux slightly shorter than its claw.

690. **MIRAFRA PHILIPPINENSIS** Ramsay.

PHILIPPINE BUSH LARK.

Mirafra philippinensis Ramsay, Ibis (1886), 160; Sharpe, Cat. Birds Brit. Mus. (1890), 13, 605; Whitehead, Ibis (1899), 243; McGregor and Worcester, Hand-List (1906), 103.

Luzon (*Heriot, Möllendorff, Steere Exp., McGregor, Whitehead*); Mindanao (*Mearns*); Mindoro (*McGregor*).

Adult.—Upper parts blackish brown, streaked with ochraceous-buff; superciliary line from bill to nape dark buff; cheeks and ear-coverts buff, speckled with black; chin and throat cream-buff; remainder of under parts dull ochraceous-buff, darker across the chest which is marked with small dusky spots; wing-feathers dark brown; quills ochraceous-buff on inner webs; primaries and their coverts edged with rusty buff on outer webs; secondaries and coverts edged with ochraceous-buff on outer webs; tertials edged with buff on both webs; outermost pair of rectrices with outer webs and most of the inner webs white; next pair with outer webs white half way to the shaft. Iris light brown; bill horn-color, lighter on lower mandible; feet and nails light flesh-color. A male from Luzon measures: Length, 140; wing, 70; tail, 46; culmen from base, 12; depth of bill at nostril, 65; tarsus, 21; hind toe with claw, 16. A female, wing, 68; tail, 42; culmen from base, 12; depth of bill at nostril, 6; tarsus, 21; hind toe with claw, 15.

In young birds in fresh plumage the feathers of the back are rounded at the tips and fringed with ochraceous-buff, and the spots on the chest are larger.

The Philippine bush lark is very abundant in the vicinity of Manila and great numbers have been noted in the markets in baskets with the equally common Formosan skylark.

Family **FRINGILLIDÆ.**

Bill conical (except in *Loxia* where the mandibles are crossed); commissure, or cutting edges of bill, angulated;* nostrils basal and near the culmen, often hidden by antrorse feathers; rictal bristles moderate in length; wings well developed with only nine primaries; rectrices twelve, tail square or slightly forked; tarsus scutellate in front, covered on each side by a single plate, and with a sharp ridge behind.

Genera.

- *a^1*. Mandibles falcate; the tips crossed .... **Loxia** (p. 676)
- *a^2*. Mandibles not falcate; the tips not crossed; culmen and gonys straight or but little curved.
    - *b^1*. Bill blunt and very stout, its width at nostril equal to bill from nostril. **Pyrrhula** (p. 677)
    - *b^2*. Bill sharp and slender, or only moderately stout, its width at nostril much less than bill from nostril.
        - *c^1*. Culmen and gonys gently curved; tail nearly square; top of head liver-brown; a large black patch on chin and throat; no yellow in the plumage .... **Passer** (p. 680)
        - *c^2*. Culmen and gonys nearly straight; tail slightly forked; plumage more or less yellow.
            - *d^1*. Gonys relatively long, being about twice as long as its ramus.
                - *e^1*. Larger; culmen flat; bill but slightly compressed even at the tip; chest orange-rufous .... **Fringilla** (p. 679)
                - *e^2*. Smaller; culmen with a slight ridge; terminal half of bill abruptly and greatly compressed; tip acute; chest lemon-yellow. **Spinus** (p. 681)
            - *d^2*. Gonys relatively short, being less than twice as long as its ramus. **Emberiza** (p. 682)

Genus LOXIA Linnæus, 1758.

Bill compressed, the tips crossed; both culmen and gonys strongly curved; wings covering about half the tail. Adult male almost entirely red, adult female partly yellow, and young of both sexes heavily streaked.

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* Coues describes this, the most important character of the family, in the following words: "But the most tangible characteristic of the family [*Fringillidæ*] is angulation of the commissure. The commissure runs in a straight line, or with a slight curve, to or near to the base of the bill, and is then more or less abruptly bent down at a varying angle—the cutting edge of the upper mandible forming a reëntrance, that of the lower mandible a corresponding salience. In familiar terms, we might say that the corners of the mouth are drawn down—that the finches, though very merry little birds, are literally 'down in the mouth.' In the great majority of cases this feature is unmistakable, and in the grosbeaks, for example, it is very strongly marked indeed; but in some of the smaller-billed forms, and especially those with slender bills, it is hardly perceptible."

691. LOXIA LUZONIENSIS Grant.

PHILIPPINE CROSSBILL.

Loxia luzoniensis GRANT, Bull. Brit. Orn. Club (1894), 3, 51; Ibis (1894), 516; GRANT and WHITEHEAD, Ibis (1898), 244 (eggs); WHITEHEAD, Ibis (1899), 239 (nesting habits); MCGREGOR and WORCESTER, Hand-List (1906), 103.

Cu-di-li-guit, Benguet Igorot.
Luzon (*Whitehead, Worcester, McGregor*).

Adult male.—Head and body geranium-red, clearest and brightest on rump, tail-coverts, and under parts, more pinkish on throat, paler on abdomen; lores, malar stripe, and ear-coverts dusky; feathers of back and wing-coverts with dusky bases; thighs drab-gray; under tail-coverts white, washed with geranium-pink, and with pointed shaft-markings of dark brown; wings and tail blackish, the larger feathers narrowly edged with geranium-pink. Length, about 140; wing, 82; tail, 51; culmen from base, 15; tarsus, 15.

Adult female.—Feathers of upper parts dark brown with lighter edges; feathers of back edged with pale yellow; feathers on anterior part of crown edged with light chrome-yellow; rump and tail-feathers nearly uniform light chrome-yellow; nasal plumes, lores, and line under eye whitish; cheeks and ear-coverts blackish brown; under parts drab-gray, chin and throat nearly white; breast and abdomen with a faint olive or yellow wash; tail-coverts white with pointed shaft-markings; wing-feathers and rectrices blackish with narrow edges of gray or pale yellow. A female, wing, 80; tail, 49; culmen from base, 16; tarsus, 15.

Young birds are dingy white heavily streaked, both above and below, with blackish brown and more or less washed with olive-gray, olive-yellow, or light chrome-yellow. Older individuals, probably of the second summer, lose the dark streaks and become extensively yellow, while still older males become indiscriminately mottled with red and yellow.

"In the end of December, 1893, Mr. Whitehead noticed a pair of these crossbills with nesting materials in their bills. In the following January, while in the highlands of Benguet, he found a nest containing three eggs and situated at the end of a pine branch. The slender branch overhung a steep slope, and it was found impossible to secure the eggs. Again on Mount Data, towards the end of January, 1895, after much trouble, a second nest was discovered near the top of a high pine-tree. This nest contained four young birds, two of which flew away before they could be secured." (*Grant and Whitehead.*)

Genus PYRRHULA Brisson, 1760.

Bill very short, stout, and blunt; bill from nostril equal to its width, and to its depth at middle of nostril; culmen and gonys decidedly curved; tail nearly square. General color of body buffy brown; chin black; rump white.

Species.

*a*¹. Larger; wing, 80 mm. or more.. **leucogenys** (p. 678)
*a*². Smaller; wing less than 80 mm.; general color more brownish.
steerei (p. 678)

692. PYRRHULA LEUCOGENYS Grant.

PHILIPPINE BULLFINCH.

Pyrrhula leucogenys GRANT, Bull. Brit. Orn. Club (1895), 4, 41; Ibis (1895), 455, pl. 14 (*leucogenis*); WHITEHEAD, Ibis (1899), 239 (feeding habits and young); MCGREGOR and WORCESTER, Hand-List (1906), 103.

Luzon (*Whitehead, Mearns, McGregor*).

Adult male.—Forehead, entire top of head, upper tail-coverts, rectrices, and secondaries glossy steel-blue; lores, jaw, and chin black; cheeks and auriculars white, forming a large patch; back olive-brown; under parts lighter brown; middle of abdomen and under tail-coverts light ochraceous-brown; rump-band white; primaries black, edged with steel-blue; innermost secondary edged with orange-vermilion on the outer web; greater coverts widely tipped with light buff; axillars and wing-lining white. Iris dark brown; bill white or pale yellow, black at tip and along the cutting edges; legs pale flesh-color. Length, about 160; wing, 78; tail, 61; depth of fork, 12; bill from nostril, 9; tarsus, 16.5.

Adult female.—Like the male, except that the red on the innermost secondary is brownish orange. The difference is very slight and my specimens have no red whatever on the secondary. A female from Pauai, Mountain Province, Luzon, measures: Wing, 79; tail, 65; bill from nostril, 10; tarsus, 16.

An *immature*, but fully grown, male differs from the adult in having the crown brown, but somewhat darker than the back and with a few black feathers; lores and jaw dusky; white cheek-patch small and poorly defined; chin dusky; throat and breast slightly olivaceous.

This bullfinch is not uncommon in the mossy oak forests of the highlands of Luzon.

693. PYRRHULA STEEREI Mearns.

STEERE'S BULLFINCH.

Pyrrhula steerei MEARNS, Proc. U. S. Nat. Mus. (1909), 36, 445.

Mindanao (*Mearns*).

"*Characters.*—Similar to *Pyrrhula leucogenys* Grant, from the mountains of Lepanto in northern Luzon. The Mindanao bird differs in being smaller, with a differently colored, much smaller bill, more brownish coloration, and a tendency to whitening on the middle of the abdomen, which the Luzon bird lacks.

"*Adult male (type, killed July 9).*—Crown and front of head all round, to just behind eye, black; crown glossed with purplish blue; lores, malar region, chin, and upper throat dead black; auriculars white;

scapulars and interscapular region deep broccoli-brown; rump white; rectrices, upper tail-coverts, primaries, secondaries, tertials, primary-coverts, and base of greater wing-coverts, glossy bluish black; lesser wing-coverts dark broccoli-brown; terminal two-fifths of greater wing-coverts broccoli-brown, paler terminally; outer web of innermost secondary edged externally with orange-vermilion; under parts broccoli-brown, shading to whitish on middle of belly and to tawny ochraceous on crissum; axillars pure white; under wing-coverts brown at base, broadly white terminally; underside of shafts of primary-quills white nearly to the tips. Fresh specimens, including the type, were noted in the field as having the iris dark brown; bill plumbeous-black, perceptibly horn-color at extreme base; feet brownish flesh-color, with underside of toes yellowish; claws brown. In the dry skins the bills are uniformly plumbeous-black.

"*Adult female* * * *. Exactly like the male, except that the outer web of the innermost secondary is edged externally with yellowish orange instead of orange-vermilion." (*Mearns.*)

Genus FRINGILLA Linnæus, 1758.

Bill moderately stout; culmen flat, without a ridge, and straight except at its extreme tip; wings long, extending beyond the toes and nearly to the tip of the slightly forked tail; colors black, white, and orange-buff.

694. FRINGILLA MONTIFRINGILLA Linnæus.

BRAMBLING.

Fringilla montifringilla LINNÆUS, Syst. Nat. ed. 10 (1758), 1, 179; SHARPE, Cat. Birds Brit. Mus. (1888), 12, 178; OATES, Fauna Brit. Ind. Bds. (1890), 2, 233, fig. 65 (head); MCGREGOR, Bull. Philippine Mus. (1904), 4, 24; MCGREGOR and WORCESTER, Hand-List (1906), 103.

Calayan (*McGregor*). Europe, northern Asia, Kamchatka, northern China; in winter to British Islands, Japan, Liu Kiu and Bonin Islands.

Male in winter.—Head, neck, mantle, and sides of head, of neck, and of throat black with wide fringes of light buff or ochraceous-buff; feathers of neck and mantle with gray bases; lower back and rump white, black along the sides; tail-coverts black, tipped with buff; chin, middle of throat, fore breast, sides, and flanks orange-buff; flanks with a few black spots; lower breast and abdomen white; crissum light buff; feathers of thighs black with buff tips; wing-quills black; primaries and secondaries narrowly edged with pale yellow; outer webs of fourth to seventh primaries with a spot of white at tips of primary-coverts; secondaries with larger white spots nearer their bases; tertials broadly edged with orange-buff on their outer webs; scapulars and lesser coverts orange-buff; median coverts white, some of them washed with buff; greater coverts black with broad buff tips; rectrices black, edged with ashy gray or pale yellow; outermost pair with basal half of outer webs white; axillars canary-yellow; wing-lining and edges of the inner webs of quills white. Iris brown; bill yellow; its tip dusky; legs light brown, soles pale yellow; nails dusky. A male from Calayan Island measures: Length, 165; wing, 94; tail, 65; culmen from base, 13; tarsus, 20.

Female in winter.—Not greatly different from the male. A female from Japan measures: Wing, 85; tail, 58; culmen from base, 13; tarsus, 19.

Male in summer.—"The summer plumage of the male is gradually assumed by the shedding of the sandy-colored edges, and the bluish ashy of the hind neck and mantle remains as a spot behind the head, the feathers of these parts generally showing ashy gray bases throughout the summer plumage.

"*Nestling.*—Recalls the plumage of the adult female, but more tinged with olive, the nape-patch well developed, and the rump-patch tinged with sulphur-yellow; under surface of body washed with pale sulphur-yellow, tinged with orange on fore neck, chest, and sides of body." (*Sharpe.*)

The brambling as a Philippine species is known only from three winter specimens collected in Calayan Island.

Genus PASSER Brisson, 1760.

Bill moderately stout, not greatly compressed; culmen straight and with a decided ridge for its basal half; rounded and gently curved for its distal half; wing moderate in length, covering less than half the tail, and its tip not reaching the base of toes. Colors black, dingy white, rusty brown, and liver-brown.

695. PASSER MONTANUS (Linnæus).

MOUNTAIN SPARROW.*

Fringilla montana LINNÆUS, Syst. Nat. ed. 10 (1758), 1, 183.

Passer montanus SHARPE, Cat. Birds Brit. Mus. (1888), 12, 178; WHITEHEAD, Ibis (1899), 238 (habits); HUME, Oates ed. Nests & Eggs Ind. Bds. (1890), 2, 162; MCGREGOR and WORCESTER, Hand-List (1906), 104.

Gor-re-ón, Manila.

Cebu (*Bourns & Worcester, McGregor*); Luzon (*Steere Exp., Bourns & Worcester, McGregor*). Northern Africa and nearly the whole of Europe and Asia.

Adult (*sexes similar*).—Forehead, crown, and hind neck liver-brown or vinous-chestnut; back, rump, and tail-coverts dull cinnamon-rufous; back with wide black stripes confined to the inner web of each feather; lores, a line under eye, a large patch on ear-coverts, chin, and middle of throat black; remainder of sides of head and sides of throat grayish white;

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* This species is called "tree sparrow" by some authors.

remainder of under parts dirty pale gray, washed with fulvous-brown on sides, flanks, thighs, and tail-coverts; wings and tail brown, most of the wing-feathers edged with dull cinnamon-rufous; lesser coverts dull chestnut; median coverts blackish, tipped with white; greater coverts edged with cinnamon-rufous and tipped with white; the tips of median and greater coverts forming bars; second to fifth primaries with an ocherous-buff band on outer webs near the tip of primary-coverts. A male from Manila measures: Length, 140; wing, 66; tail, 52; culmen from base, 13; tarsus, 17. A female, wing, 68; tail, 54; culmen from base, 14; tarsus, 17.

Young.—Color pattern like that of the adult, but upper parts lighter; crown and neck dark clay-brown, cinnamon on sides of occiput and sides of neck; back with broad streaks of buff; ear-coverts, chin, and throat slate-gray and the areas not so well defined as in the adult.

The mountain, or tree, sparrow is an introduced species in the Philippine Islands. It is found in considerable numbers about Manila and in towns along the railroads. It is also abundant in the town of Cebu.

Genus SPINUS Koch, 1816.

Bill slender and acute, its distal half greatly compressed; culmen straight, without a decided ridge; wings very long, reaching nearly to the tip of tail which is forked. Colors canary-yellow, black, and white.

696. **SPINUS SPINUS** (Linnæus).

SISKIN.

Fringilla spinus LINNÆUS, Syst. Nat. ed. 10 (1758), **1**, 181.
Chrysomitris spinus SHARPE, Cat. Birds Brit. Mus. (1888), **12**, 212; MCGREGOR, Bull. Philippine Mus. (1904), **4**, 24.
Spinus spinus MCGREGOR and WORCESTER, Hand-List (1906), 104.

Calayan (*McGregor*). British Islands, Europe, northern Asia, and Siberia; in winter to Japan, southern China, and the Liu Kiu Islands.

Male.—General color lemon-yellow; crown and nape black; back and scapulars yellowish green with dark shaft-lines; rump yellow; tail-coverts olive-green; chin and middle of fore throat black; a band from above center of eye to neck lemon-yellow; ear-coverts washed with olive; cheeks, sides of neck and of throat, and remaining under parts bright lemon-yellow, becoming white on middle of abdomen; flanks streaked with black; feathers of thighs drab-gray tipped with white; under tail-coverts yellow with broad dusky shaft-marks and white tips; wing-feathers blackish brown; primaries, except the first, narrowly edged with yellow and, except the outer three, with a spot of yellow on outer web near the tips of the coverts, forming a bar, which is continued on the outer webs of the secondaries, each of the latter has also a large yellow spot near the tip;

tertials edged with yellow, and median coverts tipped with yellowish olive; greater coverts black with olive-yellow tips; rectrices, except the middle pair, bright yellow with wide blackish brown tips, fringed with gray. A male from Calayan Island measures: Length, 114; wing, 70; tail, 43; culmen from base, 12; tarsus, 15.

Female.—Somewhat similar to the male, but the yellow much paler and more restricted; black cap and chin-spot wanting; under parts nearly all white and more heavily streaked with blackish; above olive-green with a hoary cast; head and neck spotted, and back streaked, with blackish; yellow line above and behind eye mottled with olive-green; under parts white or pale gray heavily streaked with blackish brown on sides, flanks, breast, and sides of abdomen; middle of breast and abdomen white; sides of head and of neck with obscure dusky streaks and a yellow wash. A female measures: Wing, 70; tail, 42; culmen from base, 11; tarsus, 13.

"*Young birds* resemble the old female, but are browner, with less yellow, so that the rump, eyebrow, and sides of face are whitish; the upper surface of the body is thickly mottled with blackish mesial streaks on all the feathers, and the under surface is white thickly spotted with blackish brown, the spots being triangular on the throat and breast, and longitudinal on the sides of the body and flanks." (*Sharpe.*)

The siskin as a Philippine species is known only from four specimens taken in Calayan in the month of November, 1903.

Genus EMBERIZA Linnæus, 1758.

Bill small and conical, its outlines nearly straight; cutting edge of upper mandible with a decided angle near its base; wing covering not more than one-half the tail; tips of rectrices more rounded and the tail less forked than in either *Fringilla* or *Spinus*. Plumage more or less streaked with black; outermost rectrices nearly all white, but with an oblique blackish mark near base of inner web and a small dusky mark near tip; next pair black with a long white mark near shaft.

Species.

a^1. Chin and throat chestnut; no yellow on under parts; lores, sides of face, ear-coverts, and throat vinous-chestnut; remaining under parts white; breast and sides streaked with black.......... **pusilla** (p. 683)
a^2. Chin and throat not chestnut; under parts more or less yellow.
  b^1. Throat dull ashy gray; lores and chin blackish (male). **spodocephala** (p. 684)
  b^2. Throat and breast yellow.
    c^1. Sides of body and flanks reddish brown, streaked with black (female). **spodocephala** (p. 684)
    c^2. Sides of body and flanks yellow, streaked with black.. **sulphurata** (p. 685)

697. EMBERIZA PUSILLA Pallas.

LITTLE BUNTING.

Emberiza pusilla PALLAS, Reise Russ. Reichs (1776), 697; SHARPE, Cat. Birds Brit. Mus. (1888), 12, 487; GRANT, Ibis (1894), 517; WHITEHEAD, Ibis (1899), 240; MCGREGOR and WORCESTER, Hand-List (1906), 104.

Luzon (*Whitehead*). Northern Europe, Siberia, and northern China; in winter to Tenasserim, Assam, Burma, and the Himalayas.

"*Adult male in breeding plumage.*—General color above rufous-brown, with broad black centers to the feathers, the rump rather duller brown; the scapulars chestnut with black centers; lesser wing-coverts brown; median and greater coverts black, externally edged with pale rufous-brown, with narrow white tips; bastard-wing, primary-coverts, and quills blackish, externally fringed with brown, the primaries margined with ashy brown, the secondaries with rufous; tail-feathers blackish brown, edged with lighter brown, the penultimate feather with a long wedge-shaped mark of white on the inner web; the outer feather for the most part white, with an oblique blackish mark on the inner web, and a small dusky mark near the end of the outer web; center of crown vinous-chestnut, with a broad black streak along each side, forming a band; a superciliary line, lores, sides of face, ear-coverts, and throat vinous-chestnut, with a moustachial line of black along the under margin of the cheeks, running behind the ear-coverts; hind neck paler than the crown, and streaked with whitish like the sides of the neck; remainder of under surface of body from the lower throat downwards dull white; the center of the breast, abdomen, and under tail-coverts uniform; the lower throat, fore neck, and breast, as well as the sides of the body, streaked with black; under wing-coverts and axillars white; quills dusky below, ashy along the inner web. 'Bill brown, the lower mandible whitish; feet reddish gray; iris brown.' (*David.*) Length, 122; culmen, 10; wing, 71; tail, 52; tarsus, 20.

"*Adult female in breeding plumage.*—Scarcely differs from the male, but is not quite so richly colored on the throat, and less distinctly streaked with black below.

"In *winter plumage* the adults are more rufous than in summer, with rufescent edges to the feathers of the upper surface, especially on the quills and tail-feathers; the black mark behind the ear-coverts is more distinct and not so broken up as in the breeding plumage; the under surface is suffused with ochreous-buff, and the black streaks are less pronounced.

"*Young.*—Resembles more the adult female in winter plumage, but has scarcely any vinous tinge about the face; head rufous-brown, streaked with black, with a slight band of fulvous down the center of the crown;

back fulvescent, washed with rufous and broadly streaked with black; wing-coverts broadly edged and tipped with yellowish buff; throat whitish, spotted with black like the breast; the latter as well as the flanks yellowish buff, streaked with black. After the first molt the coloration of the adult is assumed, but the plumage is always duller and much paler, and in some birds, probably females, the throat is white without any chestnut.

"*Nestling.*—Yellowish buff, broadly streaked with black, the head more rufous, and the ear-coverts rufous; underneath white, washed with rufous on the chin and with ochreous-buff on the throat and breast, thickly streaked with black on the latter as well as on the flanks and sides of the body; wings and tail as in adults, with the exception that the wing-coverts are more fulvous at tips." (*Sharpe.*)

Whitehead collected the only specimen of the little bunting which has been recorded from the Philippine Islands.

698. EMBERIZA SPODOCEPHALA Pallas.

BLACK-FACED BUNTING.

Emberiza spodocephala PALLAS, Reise Russ. Reichs (1776), 3, 698; SHARPE, Cat. Birds Brit. Mus. (1888), 12, 522; GRANT, Ibis (1895), 258; WHITEHEAD, Ibis (1899), 240; McGREGOR and WORCESTER, Hand-List (1906), 104.

Catanduanes (*Whitehead*). Eastern Siberia; in winter to Assam, Manipur, China, and eastern Himalayas; accidental in Japan.

"*Adult male in summer plumage.*—General color above dark brown, the feathers of the upper back slightly washed with rufous, edged with fulvous and broadly streaked down the middle with black; scapulars like the back; lesser wing-coverts uniform reddish brown; median and greater series blackish brown, externally sandy brown, margined paler and tipped with buffy white, more distinct on the median coverts; the inner greater coverts more distinctly rufous externally; primary-coverts and quills dusky brown, externally fringed with ashy; quills dusky brown, externally washed with rufous, the primaries with ashy white; inner secondaries resembling the inner greater coverts; lower back, rump, and upper tail-coverts uniform earthy brown; center tail-feathers light brown, the remainder dark brown, edged with lighter brown, the penultimate one with a large wedge-shaped mark of white near the end of the outer web, the outer feather almost entirely white save for an oblique black mark on the inner web and a small brown mark at the end of the outer web; head and neck all round, including the sides of the face and neck, throat, and chest ashy gray with a distinct wash of olive; lores, base of cheeks, and chin black; breast pale sulphur-yellow, whiter towards the vent; under tail-coverts pale sulphur-yellow; thighs ashy olive; sides of breast and flanks reddish brown, rather distinctly striped with black; axillars very pale sulphur-yellow; under wing-coverts white with dusky bases;

quills dusky below, ashy whitish along the edge of the inner web. 'Bill brown, with the point blackish and the lower mandible whitish; feet flesh-color; iris chestnut-brown.' (*David.*) Length, 120; culmen, 11.4; wing, 68.5; tail, 54.6; tarsus, 19.

"*Adult male in winter plumage.*—Only differs from the summer plumage in being more olive-yellow on the head and neck, some of the feathers of the crown and hind neck being tipped with rufous-brown.

"*Adult female.*—Rather browner on the head than the male and not so ashy; no black on the face or chin; ear-coverts brown, streaked with yellowish shaft-lines; lores, eyelid, and an indistinct eyebrow yellowish buff; a broad cheek-stripe of pale sulphur-yellow widening out on the side of the neck; throat and under surface of body pale sulphur-yellow, olive greenish on the throat and fore neck; a distinct malar streak of dusky blackish spots; sides of body and flanks reddish brown, streaked with black; lower abdomen and under tail-coverts yellowish white.

"*Old females* in the breeding season become a little more ashy on the head and neck. *Young birds* are always browner than the adults above, and have a number of dusky spots on the throat; otherwise they greatly resemble the old females. *Young females* (Mus. H. Seebohm) are pale brown above, with less developed black centers on the mantle; the head brown, washed with rufous and streaked with black; under surface dull white, with only a slight tinge of sulphur-yellow on the abdomen and axillars; the throat pale olive-yellow, browner on the fore neck and chest, with brown shaft-lines. *Young males in winter plumage* resemble the adult female, but seem to have more dusky spots on the throat, which commences to become dusky olive in April, with blackish on the chin. Some (probably of an earlier brood) have dusky olive throats in November, but always show dusky spots." (*Sharpe.*)

The only known Philippine specimen of the black-faced bunting was collected by Whitehead.

699. **EMBERIZA SULPHURATA** Temminck and Schlegel.

JAPANESE YELLOW BUNTING.

Emberiza sulphurata Temminck and Schlegel, Fauna Japonica, Aves (1850), 100, pl. 60; Sharpe, Cat. Birds Brit. Mus. (1888), **12**, 519; Grant, Ibis (1894), 517; Whitehead, Ibis (1899), 240.

Emberiza sulfurata McGregor and Worcester, Hand-List (1906), 104.

Calayan (*McGregor*); Luzon (*Whitehead, McGregor, Porter*). Japan, northern and central China; Formosa in winter.

Male (*Calayan Island, November, 1903*).—Top and sides of head and neck dusky olive-green; eyelids white; lores, subocular region, and malar stripe dusky; mantle dusky olive-green, heavily striped with black and somewhat washed with cinnamon; lower back and rump nearly uniform olive-gray; tail-coverts dark umber with olivaceous edges; under parts sulphur-yellow, brightest on chin, dusky across throat which is washed with buff, sides of breast washed with olive; abdomen and crissum pale canary-yellow; sides of body and flanks streaked with blackish brown; wing-feathers dark brown; lesser coverts olive; median and greater coverts, tertials, and some of the inner secondaries broadly edged and tipped with cinnamon-rufous or dull chestnut; remaining quills more narrowly edged with lighter cinnamon, inner webs of quills edged with drab-gray; rectrices blackish, the middle pair at least edged with olive-brown; outermost pair nearly all white, but with an oblique blackish mark near base of inner web and a small dusky mark near tip; next pair black with a long white mark near shaft. Upper mandible dusky; lower mandible bluish; legs and nails flesh-color. Length, 152; wing, 71; tail, 60; culmen from base, 10; tarsus, 19.

Female.—The winter plumage of the female is very similar to that of the male. A female from Calayan measures, wing, 65; tail, 54; culmen from base, 9.5; tarsus, 19.

"*Adult male in breeding plumage.*—General color greenish gray, washed with pale yellow; the head and mantle paler and more sulphur-yellow, the latter with broad mesial streaks of black; the scapulars like the mantle; the rump and lower back uniform and more distinctly ashy gray; upper tail-coverts ashy with yellowish edges; lesser wing-coverts ashy with a yellowish tinge; median and greater series blackish, edged with ashy and tipped with yellowish white, the greater coverts slightly rufescent on the outer margins; bastard-wing, primary-coverts, and quills blackish, edged with ashy olive, the secondaries externally rufescent, the innermost with whitish margins, so as to resemble the inner greater coverts; center tail-feathers light brown, the others blackish, the outer one for the most part white, excepting a longitudinal mark along the end of the outer web and an oblique basal mark on the inner web; penultimate feather with the white much reduced and forming a large wedge-shaped mark on the inner web; the third feather with only a small white mark near the end of the inner web; ear-coverts greenish gray like the hind-neck; lores, feathers in front of the eye, and a spot at base of chin dusky blackish; feathers below the eye, cheeks, and under surface of body sulphur-yellow, paler on the lower breast and abdomen, and still lighter on the under tail-coverts, which are whitish tinged with yellow; sides of breast and flanks ashy olive, the latter streaked with black; axillars and under wing-coverts white, washed with pale yellow; quills ashy below, whitish along the edge of the inner web. Length, 133; culmen, 10; wing, 72; tail, 57; tarsus, 18.

"Considerable difference exists in the full-plumaged males with regard to the amount and intensity of the black stripes on the back. In winter the adult male appears to be always more broadly streaked with black on the back, the black centers becoming attenuated during the breeding season; the mantle is also washed with rufous like the inner secondaries.

"The *adult female in breeding plumage* differs but little from the male, being duller in color and rather browner on the mantle, which is very broadly streaked with black; it is further distinguished by the absence of the black lores and chin spot. Length, 120; culmen, 11.4; wing, 70; tail, 53; tarsus, 18.

"*Young birds in winter plumage.*—Only differ from the plumage of the adult female in being rather more olive-brown, with the refescent edges to the feathers of the mantle and inner secondaries broad and strongly pronounced; lower back and rump uniform ashy olive; the under surface of the body is clear yellow, with a tinge of saffron-color on the throat and chest." (*Sharpe.*)

The Japanese yellow bunting is a somewhat abundant but inconspicuous migrant in the Philippine Islands. It was found in Calayan Island in November and in Tarlac Province, Luzon, in the month of March. It has also been taken in the vicinity of Manila.

Family **PLOCEIDÆ**.

Bill short and very stout, both deep and broad; culmen flat and slightly curved; outline of bill, viewed from above, kite-shaped; nostrils small and round, pierced near the frontal feathers and situated nearer to the culmen than to the cutting edges; primaries ten.

Subfamily VIDUINÆ.

First primary narrow and pointed, shorter than primary-coverts. All the Philippine members of this subfamily are of small size and social habits.

Genera.

a^1. Forehead not blue; sides of breast not green.
  b^1. Larger; width of bill at nostril little more than one-half the culmen from base; tail slightly rounded .... **Padda** (p. 687)
  b^2. Smaller; width of bill at nostril about two-thirds of culmen from base; tail wedge-shaped, the central pair of rectrices pointed.
    c^1. Tips of central rectrices more acute .... **Munia** (p. 688)
    c^2. Tips of central rectrices pointed but less acute .... **Uroloncha** (p. 691)
a^2. Forehead blue; sides of breast green .... **Reichenowia** (p. 692)

Genus PADDA Reichenbach, 1850.

Bill large, length of culmen about twice the width of upper mandible; tail nearly square; rectrices but slightly, if at all, pointed; legs and feet stout. Head and chin black; a large white patch covering face and ear-coverts; young with under parts buff and the head without the black and white markings.

700. **PADDA ORYZIVORA** (Linnæus).

JAVA SPARROW.

Loxia oryzivora LINNÆUS, Syst. Nat. ed. 10 (1758), **1**, 173.
Munia oryzivora SHARPE, Cat. Birds Brit. Mus. (1890), **13**, 328; MCGREGOR and WORCESTER, Hand-List (1906), 105.

Maí-añg cos'-ta, Manila.

Guimaras (*Steere Exp.*); Luzon (*Heriot, Steere Exp., Bourns & Worcester, McGregor*); Mindanao (*Steere*); Panay (*Bourns & Worcester*); Samar (*Bourns & Worcester*). Java, Sumatra, Malacca.

Adult (*sexes similar*).—Lores, entire top of head, chin, fore throat, rump, upper tail-coverts, and rectrices black; sides of head and ear-coverts white forming a large conspicuous patch; entire back, lower throat, fore breast, sides of throat and of breast, secondaries, and secondary-coverts lilac-gray; lower breast, abdomen, and flanks dark vinaceous; thighs and crissum white; alula, primaries, and primary-coverts slate-gray, edged with cinereous. Bill, legs, and nails pink. A male from Luzon measures: Length, 135; wing, 69; tail, 49; culmen from base, 16; tarsus, 18.

Young.—Above smoke-gray and drab-gray; breast and throat light drab-gray; sides of face, chin, abdomen, thighs, and crissum cream-buff.

The Java sparrow occurs in some abundance in the vicinity of Manila, but is rarely found in other localities in the Philippines.

Genus MUNIA Hodgson, 1836.

In *Munia* the bill is shorter in proportion to its width than in *Padda;* rectrices slightly graduated and, except the two or three outer pairs, sharply pointed at their tips.

Species.

a^1. Back and wing-coverts chestnut; head, throat, and chin black or blackish brown (adult).
  b^1. Head black .... **jagori** (p. 689)
  b^2. Head dark smoky brown .... **formosana** (p. 690)
a^2. Back and wing-coverts hair-brown or wood-brown; head nearly uniform with the back.
  b^1. Upper parts with white shaft-lines; chin and middle of throat rich vandyke-brown; remainder of under parts mottled (adult) .... **cabanisi** (p. 690)
  b^2. Upper parts without shaft-lines; chin and throat nearly uniform with remaining under parts which are not mottled (young).
    c^1. Larger; breast and abdomen rich buff .... { **jagori** (p. 689) / **formosana** (p. 690) }
    c^2. Smaller; breast and abdomen cream-buff .... **cabanisi** (p. 690)

701. MUNIA JAGORI Martens.

PHILIPPINE WEAVER.

Munia (*Dermophrys*) *jagori* "Cabanis," MARTENS, Jour. für Orn. (1866), 14.

Munia jagori SHARPE, Cat. Birds Brit. Mus. (1890), **13**, 337; GRANT and WHITEHEAD, Ibis (1898), 245 (eggs); WHITEHEAD, Ibis (1899), 241 (habits); MCGREGOR and WORCESTER, Hand-List (1906), 105.

Munia brunneiceps GRANT, Ibis (1895), 261; (1896), 554 (=*jagori* in worn plumage).

? *Fringilla minuta* MEYEN, Nov. Act. Acad. C. L. C. Nat. Cur. (1834), **16**, suppl. prin. 86, pl. 12.

Bi-ching, Benguet; *maí-ya*, Ticao; *má-ja*, Bohol.

Balabac (*Everett*); Bantayan (*McGregor*); Banton (*Celestino*); Batan (*McGregor*); Basilan (*Bourns & Worcester, McGregor*); Bohol (*Everett, Steere Exp., McGregor*); Bongao (*Everett*); Cagayan Sulu (*Mearns*); Calamianes (*Bourns & Worcester*); Calayan (*McGregor*); Cantanduanes (*Whitehead*); Cebu (*Meyer, Steere Exp., Bourns & Worcester, McGregor*); Fuga (*McGregor*); Guimaras (*Steere Exp.*); Leyte (*Everett, Steere Exp., Bartsch*); Lubang (*McGregor*); Luzon (*Everett, Steere Exp., Bourns & Worcester, McGregor*); Masbate (*Bourns & Worcester, McGregor*); Mindanao (*Steere, Murray, Everett, Steere Exp., Bourns & Worcester, Celestino*); Mindoro (*Steere Exp., Bourns & Worcester, McGregor*); Negros (*Everett, Steere Exp., Bourns & Worcester, Keay, Whitehead, Celestino*); Palawan (*Whitehead, Bourns & Worcester, White*); Panay (*Steere Exp., Bourns & Worcester*); Polillo (*McGregor*); Romblon (*Bourns & Worcester, McGregor*); Samar (*Steere Exp., Bourns & Worcester*); Semirara (*Worcester*); Sibay (*McGregor & Worcester*); Sibuyan (*Bourns & Worcester, McGregor*); Siquijor (*Bourns & Worcester*); Sulu (*Guillemard, Bourns & Worcester, Bartsch*); Tablas (*Bourns & Worcester*); Tawi Tawi (*Bourns & Worcester*); Ticao (*McGregor*).

Adult.—Entire head, chin, throat, and chest blackish brown; hind neck and sides of neck usually lighter or chocolate-brown, sharply defined against the chestnut of back, scapulars, wing-coverts, and edges of quills; sides of breast, flanks, and a narrow band across breast chestnut, brighter than the back; middle of lower breast, abdomen, thighs, and crissum, black or blackish brown; rump and tail-coverts deep maroon; tips of longest coverts and edges of two central rectrices golden brown or orange-rufous. Iris dark brown; bill, legs, and nails light horn-blue. A pair from Luzon measure: Male, length, 120; wing, 54; tail, 39; culmen from base, 11; tarsus, 16; female, wing, 54; tail, 38; culmen from base, 10; tarsus, 13.

Young.—Head and neck hair-brown; back and wing-coverts wood-brown, tail-coverts lighter; throat creamy buff; breast, abdomen, and crissum yellowish buff; rectrices and wing-feathers dark brown edged with buff.

The Philippine chestnut weaver, or rice bird, is abundant throughout the Islands. It is extremely social in its habits and in many cases a dozen of its globular nests may be found within a radius of a few meters. The nests are frequently built among the branches of a common species of pandanus which grows on sandy beaches. Chestnut weavers in great numbers, and *Munia cabanisi, Padda oryzivora,* and *Uroloncha everetti* in lesser numbers, are captured in nets and sold, either in the Manila markets for food or on the streets as cage-birds.

"This chestnut weaver finch feeds in large flocks and is much prized by some of the inhabitants as an article of food, its small size being compensated for by the fact that a score can be killed at one discharge of a gun. It seems to breed throughout the year; its bulky nest is placed in the grass, and is composed entirely of grass stems and leaves; the entrance is a round opening at the side. The eggs are pure white and more or less globular; from six to ten eggs are deposited in a set." (*Bourns and Worcester MS.*)

702. **MUNIA FORMOSANA** Swinhoe.

FORMOSAN WEAVER.

Munia formosana SWINHOE, Ibis (1865), 366; SHARPE, Cat. Birds Brit. Mus. (1890), **13**, 338; GRANT, Ibis (1895), 112; WHITEHEAD, Ibis (1899), 242; MCGREGOR and WORCESTER, Hand-List (1906), 105.

Luzon (*Whitehead*). Formosa.

Adult.—This species is very similar to *M. jagori* from which it may be distinguished by its smoky brown head and neck; fore part of crown and sides of face blacker. The measurements of the type as given by Sharpe and changed to millimeters are: Length, 96.5; culmen, 11.4; wing, 48; tail, 35.5; tarsus, 15.

"*Munia formosana* Swinhoe, of which a specimen was recorded from Isabela, north Luzon, appears to be a distinct pale-colored form, the head, even in freshly-molted male examples, being of a dark smoky brown. In addition to the specimens recorded in the Catalogue of Birds, I have examined a number of Formosan examples of this species in the Seebohm collection." Grant, *Ibis* (1896), 554.

703. **MUNIA CABANISI** Sharpe.

CABANIS'S WEAVER.

Oxycerca jagori (not *Munia jagori* Martens) CABANIS, Jour. für Orn. (1872), 317.

Munia cabanisi SHARPE, Cat. Birds Brit. Mus. (1890), **13**, 353 (new name); WHITEHEAD, Ibis (1899), 242; MCGREGOR and WORCESTER, Hand-List (1906), 105.

Luzon (*Meyer, Heriot, Everett, Steere Exp., Bourns & Worcester, Whitehead, McGregor, Bartsch*); Mindoro (*Porter*); Panay (*Bourns & Worcester*).

Adult (*sexes alike*).—Upper parts, including secondary-coverts and tertials, dark hair-brown with whitish shaft-lines; tail-coverts and rectrices light yellowish green; lores dusky; face and ear-coverts brown with light shaft-lines; chin and middle of throat vandyke-brown with lighter shaft-lines; feathers on the remaining under parts white with white shafts and white edges, each feather with a broad, median, brown mark and a wide brown band around the feather, next to the white edge, producing a peculiar and characteristic pattern. Iris light brown; bill horn-blue, the upper mandible darker especially toward the tip; legs and nails horn-blue. A male from Benguet Province, Luzon, measures: Length, 108; wing, 48; tail, 39; culmen from base, 10.5; tarsus, 13. A female, wing, 48; tail, 36; culmen from base, 11; tarsus, 13.

Young.—Upper parts broccoli-brown, darker on crown; under parts cream-buff, nearly white on middle of abdomen and on crissum.

Cabanis's weaver is sometimes found in small flocks, but it is much rarer than either *Munia jagori* or *Uroloncha everetti.*

"A large flock of Cabanis's weavers was seen in an open field in Panay, but this species was not again found by us. A female measures: Wing, 50; tail, 37.5; culmen, 11; tarsus, 13; middle toe with claw, 17." (*Bourns and Worcester MS.*)

Genus UROLONCHA Cabanis, 1851.

The genus *Uroloncha* as represented in the Philippines differs very little from *Munia;* in the two species of *Uroloncha* found here the plumage is all, or nearly all, chocolate-brown, the tail is wedge-shaped, and the central pair of rectrices, although pointed, are less acute than in *Munia.*

Species.

a^1. Feathers of back and wing-coverts with white shaft-lines; middle of abdomen white .... **everetti** (p. 691)

a^2. Feathers of upper parts without white shaft-lines; abdomen chocolate-brown uniform with the rest of the plumage .... **fuscans** (p. 692)

704. **UROLONCHA EVERETTI** (Tweeddale).

EVERETT'S WEAVER.

Orycerca everetti Tweeddale, Ann. & Mag. Nat. Hist. (1877), **20,** 96; Proc. Zool. Soc. (1877), 764, pl. 73, fig. 2.

Uroloncha everetti Sharpe, Cat. Birds Brit. Mus. (1890), **13,** 363; Whitehead, Ibis (1899), 242; McGregor and Worcester, Hand-List (1906), 105.

Bi-lit', Calayan.

Balabac (*Everett*); Basilan (*Steere Exp., Bourns & Worcester, McGregor*); Bohol (*McGregor*); Calamianes (*Bourns & Worcester*); Calayan (*McGregor*); Camiguin N. (*McGregor*); Catanduanes (*Whitehead*); Cebu (*Everett, Bourns & Worcester*); Guimaras (*Steere Exp.*); Leyte (*Whitehead*); Luzon (*Everett, McGregor*); Mindanao (*Koch & Schadenberg, Bourns & Worcester, Celestino*); Mindoro (*Porter*); Negros (*Whitehead, Celestino*); Palawan (*Everett, Whitehead, Platen, Steere Exp., Bourns & Worcester, White*); Panay (*Steere Exp.*); Polillo (*McGregor*); Romblon (*Bourns & Worcester*); Samar (*Whitehead*); Sibuyan (*Bourns & Worcester, McGregor*); Tablas (*Bourns & Worcester*); Tawi Tawi (*Bourns & Worcester, Everett*).

Adult (*sexes alike*).—Above chocolate-brown, darkest on forehead and tail-coverts; tertials, secondary-coverts, hind head, neck, back, and rump with distinct white shaft-lines; rectrices dark brown, edged with pale greenish yellow; lores blackish; sides of head and neck like back; under parts dark chocolate-brown, nearly black on chin and crissum; lower breast and abdomen white, forming a large patch. Iris dark red-brown; upper mandible black, lower mandible light horn-blue; legs and nails dark blue. Length, 110 to 120. A male from Camiguin Island measures: Wing, 51; tail, 40; culmen from base, 12; tarsus, 12. A female from Palawan, wing, 50; tail, 37; culmen from base, 11; tarsus, 12.

Young.—An immature male has the color pattern like the adult, but the brown is lighter, the shaft-lines are less pronounced, and the abdomen is washed with buff.

"Everett's weaver was common about the rice fields, and was several times observed in deep forest, greatly to our astonishment. Four males average: Length, 108; wing, 48; tail, 39; culmen, 12; tarsus, 13; middle toe with claw, 16.5. Four females, length, 107; wing, 48.5; tail, 37.5; culmen, 12; tarsus, 14; middle toe with claw, 17. Iris dark brown; legs, feet, and nails leaden; upper mandible black, lower gray. Found breeding in Palawan in the month of December." (*Bourns and Worcester MS.*)

705. **UROLONCHA FUSCANS** (Cassin).

CHOCOLATE WEAVER.

Spermestes fuscans CASSIN, Proc. Acad. Nat. Sci. Philad. (1852), **6**, 185.
Uroloncha fuscans SHARPE, Cat. Birds Brit. Mus. (1890), **13**, 364; McGREGOR, Bull. Philippine Mus. (1903), **1**, 6; McGREGOR and WORCESTER, Hand-List (1906), 105.

Cagayan Sulu (*McGregor*). Borneo.

Adult (*sexes alike*).—Entire plumage chocolate-brown; chin, throat, wings, and tail darker; lower breast and abdomen with indications of light shaft-lines. A male measures: Wing, 49; tail, 37; culmen from base, 10.5; tarsus, 13. Female, wing, 50; tail, 39; culmen from base, 10.5; tarsus, 14.

Genus REICHENOWIA Poche, 1904.*

Tail short and square; outstretched feet reaching to end of tail. Forehead blue, remaining upper parts mostly green; breast and abdomen tawny-rufous.

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* *Chlorura* Reichenbach, 1863, is preoccupied by *Chlorura* Sclater, 1862.

706. REICHENOWIA BRUNNEIVENTRIS (Grant).

BAMBOO WEAVER.

Chlorura brunneiventris Grant, Bull. Brit. Orn. Club (1894), 3, 50;* Ibis (1894), 518; Whitehead, Ibis (1899), 242 (habits and notes); McGregor and Worcester, Hand-List (1906), 105.

Luzon (*Whitehead*); Mindoro (*Whitehead, McGregor*).

Adult.—Above including tail-coverts dark grass-green; head green; forehead blue with a narrow black band along base of bill; lores, sides of face, ear-coverts, and under parts tawny-rufous, paler posteriorly; sides of breast green, washed with blue; sides of body and flanks grass-green; primaries edged with olive-yellow; tail-feathers green at ends; center ones green, washed with orange. "Iris dark brown; bill black; feet flesh-color." (*Whitehead.*) Length, 106; wing, 58.

This curiously colored weaver appears to be very rare or, at any rate, to be difficult to collect. Whitehead's interesting notes on this species follow:

"These small bamboo sparrows are always difficult to obtain; being wary and of swift flight, they disappear in a second when alarmed. Amongst the bamboo-flowers, on which they feed, their movements are very slow and quiet, and it is only after one has found a number of bamboo-clumps in full flower, by carefully hiding and watching the flowers, that any success is obtained. My first specimens were collected in Benguet at an elevation of only 2,000 feet [610 meters], and we next met with the species again at 7,600 feet [2,300 meters] on Monte Data, where a single specimen was secured. In Mindoro I shot a *Chlorura* [=*Reichenowia*] in a pine tree close to my camp, and noticed another some days previously feeding at the end of a pine branch; this was at an elevation of 4,500 feet [1,370 meters]. The note, which seems only to be uttered when the bird is on the wing, is 'tsit, tsit,' and is a somewhat hissing sound."

Family **ORIOLIDÆ**.

Bill as long as head, the terminal half decidedly compressed; culmen slightly curved throughout; gonys straight or slightly curved; a small but distinct notch near tip of bill; nostril oval, exposed, and nearer to cutting edge of mandible than to culmen; rictal bristles short; wing long, covering one-half or more of the tail; primaries ten, the first more than one-half and less than two-thirds of second, the latter shorter than third and equal to sixth; the fourth longest; rectrices well developed, tail slightly rounded.

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* Grant's diagnosis of *Chlorura brunneiventris* follows: "*C.* similis *C. borneensi*, Sharpe, sed abdomine quoque rufescente, pectore concolore; pectoris lateribus caeruleo lavatis; fronte caerulea lactiore et minus extensa. Long. tot. 4.2 poll., alae 2.3."

Genus ORIOLUS Linnæus, 1766.

Characters the same as those given for the family. In the Philippine species the prevailing colors are yellow, black, and gray; the rectrices are black, tipped with yellow in all the species.

Species.

- a^1. Under parts entirely yellow, or yellow streaked with black or olive; throat and chest never black nor gray.
  - b^1. Much larger; wing more than 140 mm.; tail, about 110; under parts uniform yellow (adult), or with black shaft-lines on the breast (young). **acrorhynchus** (p. 695)
  - b^2. Much smaller; wing less than 130 mm.; tail, 90 or less.
    - c^1. Lores and chin yellow; bill leaden blue; bill from nostril, about 18 mm. **isabellæ** (p. 697)
    - c^2. Lores and chin white; bill dull red; bill from nostril, about 15 mm. **albiloris** (p. 697)
- a^2. Under parts yellow on crissum only; throat and chest gray, black, or streaked; abdomen white heavily streaked with black.
  - b^1. Crown and hind neck bright yellow, or greenish yellow, uniform with mantle and back (sexes alike).
    - c^1. Crissum bright yellow; shafts of rectrices light yellow below, inner webs broadly tipped with yellow, the spots 8 mm. or more in length.
      - d^1. Inner webs of wing-quills edged with bright yellow; under wing-coverts bright yellow .... **samarensis** (p. 698)
      - d^2. Inner webs of wing-quills edged with white, pale gray, or pale yellow, never with bright yellow.
        - e^1. Inner webs of quills edged with white or pale gray; yellow spots at tips of rectrices larger........ **steeri** (p. 698)
        - e^2. Inner webs of quills edged with pale yellow; spots at tips of rectrices smaller.
          - f^1. Ear-coverts dull olive-yellow; smaller; wing, about 110 mm.; tail, 70........ **basilanicus** (p. 699)
          - f^2. Ear-coverts pure gray; larger; wing, about 115 mm.; tail, 80. **cinereogenys** (p. 700)
    - c^2. Crissum dark greenish yellow; rectrices nearly uniform black, very narrowly tipped with yellow, the spots about 2 mm. in length; the shafts white or gray .... **assimilis** (p. 700)
  - b^2. Crown and hind neck black (male), or black streaked with olive-green (female), in contrast with the yellow mantle and back. **xanthonotus** (p. 701)

707. ORIOLUS ACRORHYNCHUS Vigors.

PHILIPPINE ORIOLE.

Oriolus acrorhynchus VIGORS, Proc. Zool. Soc. (1831), 97.
Oriolus chinensis Linnæus, apud SHARPE, Cat. Birds Brit. Mus. (1877), **3**, 203; GRANT and WHITEHEAD, Ibis (1898), 235 (eggs); WHITEHEAD, Ibis (1899), 100 (habits); McGREGOR and WORCESTER, Hand-List (1906), 106.
Oriolus sulucnsis SHARPE, Cat. Birds Brit. Mus. (1877), **3**, 205.
Broderipus acrorhynchus TWEEDDALE, Proc. Zool. Soc. (1877), 760.
Oriolus palawanensis SHARPE, Ibis (1888), 200.

Cul-au-uan, Palawan; *cu-li-au-an,* Lubang; *kce-ao,* Calayan and Ticao; *tu-li-haó,* Bantayan, Bohol, and Masbate; *ca-li-lau-an,* Cagayancillo; *tu-tu-li-ao,* Cuyo; *da-mud-lao,* Bohol.

Banton (*Celestino*); Bantayan (*McGregor*); Balabac (*Steere, Everett*); Basilan (*Everett, Steere Exp., Bourns & Worcester, McGregor*); Bohol (*Everett, McGregor*); Bongao (*Everett*); Cagayancillo (*McGregor*); Calamianes (*Bourns & Worcester, McGregor*); Calayan (*McGregor*); Caluya (*Porter*); Camiguin N. (*McGregor*); Catanduanes (*Whitehead*); Cebu (*Meyer, Murray, Everett, Bourns & Worcester, McGregor*); Cuyo (*McGregor*); Dinagat (*Everett*); Fuga (*Whitehead*); Guimaras (*Meyer, Murray, Steere Exp., Bourns & Worcester*); Lapac (*Guillemard*); Leyte (*Everett, Steere Exp.*); Libagao (*Porter*); Lubang (*McGregor*); Luzon (*Cuming, Meyer, Everett, Steere Exp., Bourns & Worcester, Whitehead, McGregor, Bartsch*); Maestre de Campo (*McGregor & Worcester*); Marinduque (*Steere Exp.*); Masbate (*Bourns & Worcester, McGregor*); Mindanao (*Steere, Murray, Everett, Steere Exp., Bourns & Worcester, Goodfellow, Bartsch*); Mindoro (*Steere Exp., Schmacker, Bourns & Worcester, McGregor*); Negros (*Layard, Meyer, Steere, Everett, Steere Exp., Bourns & Worcester, Keay*); Palawan (*Everett, Lempriere, Platen, Whitehead, Steere Exp., Bourns & Worcester, White*); Panaon (*Everett*); Panay (*Murray, Steere Exp., Bourns & Worcester*); Pangamian (*Bartsch*); Polillo (*McGregor*); Romblon (*Bourns & Worcester*); Samar (*Steere Exp.*); Semirara (*McGregor & Worcester*); Sibay (*McGregor & Worcester, Porter*); Sibutu (*Low, Everett*); Sibuyan (*Bourns & Worcester, McGregor*); Siquijor (*Steere Exp., Bourns & Worcester, Celestino*); Sulu (*Burbidge, Guillemard, Bourns & Worcester*); Tablas (*Bourns & Worcester*); Tawi Tawi (*Bourns & Worcester*); Ticao (*McGregor*); Verde (*McGregor*).

Adult male.—Bright golden yellow and black; forehead and part of crown yellow; lores, a wide space about eye continued with a broad band across crown and occiput black, forming a broad crescent-shaped mark; wings black, some of the primaries narrowly edged with gray; tertials tipped with yellow; secondary-coverts, axillars, wing-lining, and edge of wing bright yellow; rectrices black, tipped with yellow, the yellow tip narrowest on the central pair and gradually wider on each succeeding pair to the outermost; entire under parts bright yellow, not so deep as the back. Iris pale pink; bill pinkish flesh-color; legs plumbeous; nails horn-color. An adult male from Luzon measures: Length, 305; wing, 150; tail, 104; culmen from base, 34; bill from nostril, 24; tarsus, 25.

Adult female.—Similar to the male, but the mantle with a dusky, slightly olive, wash contrasting strongly with the clear golden yellow of hind neck. A female from Mindoro measures: Wing, 149; tail, 112; culmen from base, 34; bill from nostril, 25; tarsus, 26.

Young.—Above olive-yellow or golden olive; the crescent crown mark obscure and more or less dusky olive in color; tertials and rectrices dusky, washed with olive; under parts much paler than in the adult, near lemon- or gamboge-yellow; feathers of breast with distinct black shaft-lines. As the bird becomes older the crescent-mark on the head becomes better developed and the shaft-marks on the breast become less distinct. The bill is dusky brown in immature individuals.

Three eggs of the Philippine oriole, taken by Whitehead at Cape Engaño, Luzon, on April 15, 1895, are thus described:

"Shape ovate. Pure white, with scattered spots and minute dots of deep blackish brown, and a few faint under-markings of slate gray. Measurements 32 mm. by 23 mm." Two eggs from Fuga, April 5, 1895, are "similar to the above." Measurements 33 mm. by 22 mm.

"The first nest was placed in a casuarina tree on the seacoast at some distance from the forest; the second was found in a high tree close to the freshly made nest of the white-breasted sea eagle (*Haliætus leucogaster*) from which the bird was disturbed. Both nests were of the usually oriole type." (*Grant and Whitehead.*)

"After a careful comparison of specimens from Palawan and the Calamianes Islands, we can see no good reason for making distinct species of them. The amount of yellow on the head is extremely variable. We have birds from Luzon and Mindoro which show quite as much as any of our Palawan or Calamianes birds. Nor do we find any constant difference in size between the Palawan-Calamianes birds and those from other parts of the group.

"Nine males average: Length, 290; wing, 155; tail, 107; culmen, 37; tarsus, 25; middle toe with claw, 28.7. Five females, length, 280; wing, 149; tail, 105; culmen, 36; tarsus, 25; middle toe with claw, 28.4. Iris brown; legs and feet dull black; bill pinkish, white along gape and at tip. One of the commonest Philippine birds, found abundantly among the coconut groves and in the scattered trees about open fields, and not infrequently met with in the forest as well. Variously called 'antu-li-hao', 'tu-li-hao', 'tu-li-hi-ao', and 'ku-li-ao-an' by the natives, in attempted imitation of its rather musical note." (*Bourns and Worcester MS.*)

708. ORIOLUS ISABELLÆ Grant.

GRANT'S ORIOLE.

Oriolus isabellæ GRANT, Bull. Brit. Orn. Club (1894), 4, 2; Ibis (1895), 108; (1899), 101; WHITEHEAD, Ibis (1899), 101 (habits); McGREGOR, Bull. Philippine Mus. (1903), 1, 7 (description of male); McGREGOR and WORCESTER, Hand-List (1906), 106.

Luzon (*Whitehead, McGregor, Celestino*).

Adult (*sexes alike*).—Upper parts, lores, face, ear-coverts, and sides of neck dark, rich olive-yellow, slightly more olive on crown and exposed edge of wing-feathers; a circle of light yellow around eye; entire under parts, wing-lining, and axillars rich lemon-yellow, slightly darker on chest; thighs slightly olive; wing-quills, primary-coverts, and greater secondary-coverts narrowly edged with lemon-yellow; inner webs of quills dusky brown, broadly edged with lemon-yellow; rectrices edged with lemon-yellow on the tips and inner webs; shafts brown above, lemon-yellow below. A male from Bataan Province, Luzon, measures: Length, 215; wing, 114; tail, 82; culmen from base, 25; bill from nostril, 18; tarsus, 22.5. In a female the iris was brown with an inner darker and outer lighter ring; bill, legs, and nails bluish horn-color. Length, 215; wing, 107; tail, 79; culmen from base, 26; bill from nostril, 19; tarsus, 22.

709. ORIOLUS ALBILORIS Grant.

WHITE-LORED ORIOLE.

Oriolus albiloris GRANT, Bull. Brit. Orn. Club (1894), 3, 49; Ibis (1894), 504; WHITEHEAD, Ibis (1899), 101; McGREGOR, Bull. Philippine Mus. (1903), 1, 7 (description of male); McGREGOR and WORCESTER, Hand-List (1906), 106.

Luzon (*Whitehead, McGregor, Celestino*).

Adult (*sexes alike*).—Wing and upper surface rich olive-yellow like *O. isabellæ;* lores, a small space under eye, base of jaw, and chin white; under parts lemon-yellow, streaked on sides of breast, sides of abdomen, and sides of body and flanks with dark olive-green; feathers of thighs olive-green with yellow tips; rectrices olive-yellow, each with a triangular, lemon-yellow patch at the tip preceded by a dark brown patch; central pair unmarked; shafts brown above, lemon-yellow below; wing-feathers as in *O. isabellæ.* Bill reddish brown. Length, 190 to 200. A male from Bataan Province, Luzon, measures: Wing, 120; tail, 80; culmen from base, 22; bill from nostril, 15; tarsus, 20. A female, wing, 109; tail, 75; culmen from base, 21; bill from nostril, 14; tarsus, 19.

710. **ORIOLUS SAMARENSIS** Steere.

SAMAR ORIOLE.

Oriolus samarensis STEERE, List Birds & Mams. Steere Exped. (1890), 17; GRANT, Ibis (1897), 223; WHITEHEAD, Ibis (1899), 100 (habits); MCGREGOR and WORCESTER, Hand-List (1906), 106.

Leyte (*Whitehead*); Mindanao (*Celestino*); Samar (*Steere Exp., Bourns & Worcester, Whitehead*).

Adult (*sexes alike*).—Upper parts, ear-coverts, sides of neck, secondary-coverts, tertials, and middle pair of rectrices rich olive-yellow; lores, jaw, chin, throat, and chest cinereous; lower breast, abdomen, flanks, and thighs white, boldly streaked with black; crissum bright gamboge-yellow; primaries blackish edged with gray or olive on the outer webs; secondaries blackish, edged with olive-yellow on outer webs; inner webs of quills broadly edged with bright lemon-yellow; axillars, wing-lining, and bend of wing lemon-yellow; rectrices largely olive-yellow, blackish subterminally, each of the inner webs with a large yellow spot at the tip; shafts black above, yellow below. Bill dull red. A male from northern Mindanao measures: Wing, 113; tail, 79; culmen from base, 25; bill from nostril, 17; tarsus, 21. An unsexed specimen from Samar, wing, 101; tail, 68; culmen from base, 20; bill from nostril, 15; tarsus, 20.

"A well-marked species sharply distinct from *O. steeri,* as well as from *O. assimilis,* though Dr. Steere has not made the points of difference very plain. Five males average: Length, 195; wing, 105; tail, 72; culmen, 24; tarsus, 20.5; middle toe with claw, 22.3. A female measures: Length, 203; wing, 104; tail, 71; culmen, 23; tarsus, 20.5; middle toe with claw, 22. Iris dull brown to light brownish red; legs and feet dark slate-color, nails blackish; bill light to dark reddish brown." (*Bourns and Worcester MS.*)

711. **ORIOLUS STEERI** Sharpe.

STEERE'S ORIOLE.

Oriolus steerii SHARPE, Cat. Birds Brit. Mus. October or earlier (1877), **3,** 213, pl. 10 (description of adult from Negros); GRANT, Ibis (1896), 532 (Negros; key to Philippine species of *Oriolus*); CLARKE, Ibis (1898), 119; WHITEHEAD, Ibis (1899), 101 (habits).

Oriolus nigrostriatus BOURNS and WORCESTER, Minnesota Acad. Nat. Sci. Occ. Papers (1894), **1,** 16 (Negros and Masbate); Proc. U. S. Nat. Mus. (1898), **20,** 558, no. 305; MCGREGOR and WORCESTER, Hand-List (1906), 107.

Masbate (*Steere Exp., Bourns & Worcester*); Negros (*Steere, Keay, Whitehead, Celestino*).

Male.—Above olive-yellow; slightly darker on head, and brighter, more golden, on rump and tail-coverts; chin, throat, and chest dark ashy gray; lower breast and abdomen whitish, each feather with a broad median black streak; thighs black, mottled with white; under tail-coverts bright lemon-yellow with dusky shaft-lines; primaries, outer secondaries, primary-coverts, and alula-feathers blackish, edged with ashy gray; inner webs of primaries edged with white; secondary-coverts and inner secondaries edged with dark olive-yellow; rectrices blackish, the outermost pair each with a large yellow spot (about 18 mm. in length) at tip of inner web, the spot gradually decreasing in size on each succeeding feather. A male from northern Negros measures: Wing, 122; tail, 86; culmen from base, 24; tarsus, 21.

Female.—The female resembles the male in colors, but is slightly smaller and has a smaller yellow spot on the outermost rectrix. A female from northern Negros measures: Wing, 111; tail, 78; culmen from base, 23.5; tarsus, 21.

Steere's oriole differs from the Basilan oriole in having the inner webs of the primaries white and the yellow spots on the rectrices much larger.

712. **ORIOLUS BASILANICUS** Grant.

BASILAN ORIOLE.

Oriolus steerii (not of Sharpe, Cat. Birds Brit. Mus.) Sharpe, Trans. Linn. Soc. 2d. ser. Zool. November (1877), **1**, 329 (description of adult male from Basilan); Tweeddale, Proc. Zool. Soc. (1879), 71 (Basilan); Worcester and Bourns, Proc. U. S. Nat. Mus. (1898), **20**, 558, no. 302 (Basilan and Mindanao); McGregor and Worcester, Hand-List (1906), 106 (Basilan and Mindanao).

Oriolus basilanicus Grant, Ibis (1896), 532; Ibis (1906), 471.

Oriolus steerei McGregor, Phil. Jour. Sci. (1907), **2**, sec. A, 290 (Basilan).

Basilan (*Steere, Everett, Steere Exp., Bourns & Worcester, McGregor*); Mindanao (*Platen, Bourns & Worcester*).

Adult.—Similar to *Oriolus steeri* of Negros from which it differs in having the lores, chin, throat, and chest lighter gray and the black stripes of lower breast and abdomen narrower; inner webs of quills edged with pale yellow instead of with white; the yellow spots on inner webs of rectrices much smaller. Iris red; bill reddish brown; feet dark plumbeous. A male measures: Length, 200; wing, 111; tail, 69; culmen from base, 22.5; bill from nostril, 16; tarsus, 21. A female measures: Length, 195; wing, 106; tail, 68; culmen from base, 22; bill from nostril, 16; tarsus, 20.

Young.—Like the adult but chin, throat, and chest white, streaked with gray or black. Iris gray with very little mixture of red; bill dark brown.

"Had we known the habits of the orioles of this type as well at the beginning of our trip as we did at its close, we should doubtless have done more than we did to extend their known distribution within the Philippines. The peculiar note which they utter at frequent intervals when feeding is absolutely unmistakable, and can be heard for a considerable distance. They feed for the most part in the tops of high trees, seldom coming down into the second growth. They can, however, be readily called by imitating their note.

"Eleven males average: Length, 192; wing, 111; tail, 71; culmen, 23.8; tarsus, 21; middle toe with claw, 23. Five females, length, 182; wing, 105; tail, 71; culmen, 23.6; tarsus, 20; middle toe with claw, 22. Iris varies from gray to brown and red; legs and feet dark drab, nails black; bill light reddish brown." (*Bourns and Worcester MS.*)

713. **ORIOLUS CINEREOGENYS** Bourns and Worcester.

GRAY-CHEEKED ORIOLE.

Oriolus cinereogenys BOURNS and WORCESTER, Minnesota Acad. Nat. Sci. Occ. Papers (1894), **1**, 16; Proc. U. S. Nat. Mus. (1898), **20**, 558, no. 304 (Tawi Tawi and Bongao).

Bongao (*Everett*); Tawi Tawi (*Bourns & Worcester, Everett*).

"In uniting the Tawi Tawi birds with *O. steerii* [*basilanicus*] from Basilan and Mindanao, Dr. Sharpe has evidently overlooked the fact that the Tawi Tawi birds invariably have the cheeks and ear-coverts clear ashy gray, while in birds from Basilan and Mindanao they are just as invariably olive-green. As we find no exception to this rule among our fourteen specimens from Basilan and twenty from Tawi Tawi we have no hesitation in separating the birds from the latter locality. It may be added that the rump of the Tawi Tawi birds is rather brighter, and the throat decidedly lighter than in Basilan birds. Not one of our Tawi Tawi birds shows the uniform gray throat of *O. steerii* [*basilanicus*]. Both species show great variability in the color of under tail-coverts. In some specimens they are pure yellow and in others heavily streaked with black. Fifteen males from Tawi Tawi measure as follows: Length, 203; culmen, 24.3; wing, 116.5; tail, 81; tarsus, 21." (*Bourns and Worcester.*)

"Four females average: Length, 200; wing, 111; tail, 76; culmen, 23.3; tarsus, 21; middle toe with claw, 21.8. Eyes usually reddish brown, but in two cases gray; legs and feet dark drab; bill reddish brown usually, in two cases black. Very common near Tataan, in Tawi Tawi." (*Bourns and Worcester MS.*)

714. **ORIOLUS ASSIMILIS** Tweeddale.

CEBU ORIOLE.

Oriolus assimilis TWEEDDALE, Proc. Zool. Soc. (1877), 760, pl. 76 McGREGOR and WORCESTER, Hand-List (1906), 107; McGREGOR, Phil. Jour. Sci. (1907), **2**, sec. A, 308.

Cebu (*Everett, Bourns & Worcester, McGregor*).

Adult (*sexes similar*).—Above olive-yellow; lores, jaw, cheeks, chin, throat, and chest cinereous; lower breast, abdomen, flanks, and thighs white heavily streaked with black; feathers of crissum dark olive-green, edged with olive-yellow; rectrices black slightly washed with olive basally, narrowly tipped with dark gray on both webs and with light yellow on inner webs; inner webs of wing-quills edged with pale gray; axillars and wing-lining cinereous; bend of wing gray, washed with yellow. Iris bright red; bill dull red-brown; feet lead-blue; nails black. In the immature bird the iris is white and the bill dull brown. An adult male measures: Length, 234; wing, 122; tail, 94; culmen from base, 24; bill from nostril, 16.5; tarsus, 22. Adult female, wing, 116; tail, 86; culmen from base, 24; bill from nostril, 16.5; tarsus, 22.

While this species is plainly of the *Oriolus steeri* type it differs in being larger, in the much darker and greener upper parts and under tail-coverts, in the darker throat and breast, in the wider black markings of abdomen, and in the reduced yellow tips of rectrices.

"*O. assimilis* is exceedingly common in the small amount of forest left in Cebu. It is a well-marked species and could not possibly be mistaken for *O. steeri,* being a much darker bird. The lack of the bright rump and under tail-coverts is an especially striking point of difference. Sixteen males average: Length, 225; wing, 120; tail, 89; culmen, 26; tarsus, 22.3; middle toe with claw, 23.8. Ten females, length, 217; wing, 118; tail, 87; culmen, 25.6; tarsus, 22.3; middle toe with claw, 23.3. Iris usually bright red, but in one case gray; legs and feet dark drab, nails black; bill light to dark reddish brown. Food worms, grubs, snails, and fruit." (*Bourns and Worcester MS.*)

715. ORIOLUS XANTHONOTUS Horsfield.

BLACK-HEADED ORIOLE.

Oriolus xanthonotus HORSFIELD, Trans. Linn. Soc. (1821), 13, 152; SHARPE, Cat. Birds Brit. Mus. (1877), 3, 213; Ibis (1888), 200; McGREGOR and WORCESTER, Hand-List (1906), 107.

Calamianes (*Worcester*); Palawan (*Everett, Whitehead, Steere Exp., Bourns & Worcester, Celestino, White*). Malacca, Java, Sumatra, Borneo.

Adult male.—Entire head, neck, chin, throat, and chest black; back, rump, tail-coverts, and crissum rich lemon-yellow; feathers of back with obscure dusky shaft-lines; basal feathers of crissum with mesial streaks of olive-green; lower breast, abdomen, sides, and flanks white with wide, black, mesial streaks; sides and flanks washed with yellow; breast also washed with yellow in some specimens: feathers of thighs black, tipped with light yellow; wings black; primaries edged with light gray; secondaries, tertials, and greater coverts narrowly edged with bright yellow; median coverts more widely edged with yellow; lesser coverts entirely yellow; inner webs of quills edged with pale yellow; under wing-coverts black, edged with yellow; axillars yellow; rectrices black, slightly fringed with yellow basally, widely tipped with yellow on inner webs, about 25 mm. on outermost pair and reduced to a mere trace on the middle pair; shafts of rectrices black above, brown below. A male measures: Wing, 111; tail, 75; culmen from base, 23; bill from nostril, 16; tarsus, 20.

Female.—Head, neck, sides of neck and ear-coverts black, streaked with olive-green; back yellow, but not so bright as in the male; jaw, chin, throat, and chest cinereous with whitish streaks; breast and abdomen like the male, but less heavily streaked with black; primaries more widely edged with pale gray than in the male; secondaries and tertials broadly edged with olive-green; primary-coverts and alula edged with gray; exposed edges of all the secondary-coverts olive-green; rectrices heavily washed with olive-green on outer webs; both webs of central pair nearly all olive-green; shafts yellow below. A female measures: Wing, 109; tail, 76; culmen from base, 23; bill from nostril, 16.5; tarsus, 21.

"Eight males average: Length, 197; wing, 114; tail, 77; culmen, 25; tarsus, 20.5; middle toe with claw, 22.3. Five females, length, 192; wing, 106; tail, 73; culmen, 23; tarsus, 20.5; middle toe with claw, 21.5. Iris deep red; legs and feet slaty blue, nails blackish; bill light reddish brown." (*Bourns and Worcester MS.*)

Family **DICRURIDÆ.**

Bill strong, culmen ridged and strongly curved; cutting edge curved with a notch near the tip; nostrils hidden by many soft, antrorse, frontal plumes, the anterior of which have long bristle-like shafts; rictal bristles long and stiff; wing long; first primary more than one-half the second, the latter much less than third; fourth and fifth practically equal and longest; tail long to very long, slightly to deeply forked; rectrices ten, the two outer pairs curved outward near the tips. Legs and feet stout: tarsus slightly longer than bill from nostril; bill, legs, and nails black in all the species.

Genera.

a^1. Plumage mostly, or entirely, black; upper parts glossed with green or blue.
  b^1. Tips of outermost rectrices not curved upward; tail nearly square. **Dicrurus** (p. 702)
  b^2. Tips of outermost rectrices curved upward, the webs more or less rotated about the shaft; tail decidedly forked.................................... **Chibia** (p. 705)
a^2. Plumage almost entirely gray and cinereous, with neither blue nor green gloss; tail deeply forked.. **Bhuchanga** (p. 708)

Genus DICRURUS Vieillot, 1816.

Wing much longer than tail; tail slightly forked; rectrices broad, the outermost with very little if any upward curve at tip. Plumage mostly, or entirely, black, glossed with blue or green.

Species.

- *a*¹. Lower breast, abdomen, and crissum black, glossed with green or blue.
  - *b*¹. Back strongly glossed with green.. balicassius (p. 703)
  - *b*². Back velvety black with little or no gloss.
    - *c*¹. Smaller; wing, 130 to 135 mm.; tail, 112 to 115............ striatus (p. 704)
    - *c*². Larger; wing, 145 to 155 mm.; tail, 133 to 136................ suluensis (p. 704)
- *a*². Lower breast, abdomen, and crissum white.............................. mirabilis (p. 705)

716. **DICRURUS BALICASSIUS** (Linnæus).

NORTHERN DRONGO.

Corvus balicassius LINNÆUS, Syst. Nat. ed. 12 (1766), 1, 157.

Dicrurus balicassius TWEEDDALE, Trans. Zool. Soc. (1875), 9, 180, pl. 31, fig. 1; SHARPE, Cat. Birds Brit. Mus. (1877), 3, 230; WHITEHEAD, Ibis (1899), 101 (song); MCGREGOR and WORCESTER, Hand-List (1906), 107.

Dicrurus balicassius mindorensis MEARNS, Proc. U. S. Nat. Mus. (1909), 36, 447.*

Ba-li-ca-si-ao, Filipino name.

Lubang (*McGregor*); Luzon (*Meyer, Everett, Bourns & Worcester, Whitehead, McGregor, Bartsch*); Marinduque (*Steere Exp.*); Mindoro † (*Steere Exp., Schmacker, Bourns & Worcester, Whitehead, McGregor, Mearns*); Polillo (*McGregor*); Verde (*McGregor.*)

Adult (*sexes alike*).—Black, the exposed edges of the feathers glossed with steel-green which changes to dark purple in some lights; lores velvety black; feathers of throat and chest somewhat lanceolate; feathers of sides and flanks white or light gray basally; wing-lining and axillars glossy steel-blue. A male from Lubang Island measures: Length, 267; wing, 145; tail, 126; bill from nostril, 20; depth of bill at nostril, 10; tarsus, 23. A female from Bataan Province, Luzon, measures: Wing, 141; tail, 118; bill from nostril, 21; depth of bill at nostril. 11; tarsus, 24.

"The Philippine representatives of this genus are all bold, impudent birds, and invariably appear when there is any disturbance in the woods. If picked up when wounded they bite and scratch viciously. They all feed exclusively on insects so far as our observation goes. Three male birds from Mindoro measure as follows: Wing, 138; tail, 113; culmen, 32; tarsus, 23; middle toe with claw, 24. Three females from Luzon, wing, 131; tail, 116.5; culmen, 31; tarsus, 23; middle toe with claw, 24. Bill, legs, feet, and nails black. Found breeding on the 25th of April." (*Bourns and Worcester MS.*)

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* "*Characters.*—Slightly larger than *Dicrurus balicassius* from Luzon Island; also differing in having the metallic reflections of the upper parts and breast greenish blue instead of bluish green.

"*Measurements of type* (adult male).—Wing, 148; tail, 130; culmen, 27; tarsus, 25." (*Mearns.*)

† Wrongly given as "Mindanao" in McGregor and Worcester's Hand-List, p. 107.

717. **DICRURUS STRIATUS** Tweeddale.

SOUTHERN DRONGO.

Dicrurus striatus TWEEDDALE, Proc. Zool. Soc. (1877), 545; Challenger Report, Zool. (1881), 2, pt. 8, pl. 4; WHITEHEAD, Ibis (1899), 102 (habits); MCGREGOR and WORCESTER, Hand-List (1906), 107.

Basilan (*Everett, Steere Exp., Bourns & Worcester, McGregor*); Bohol (*McGregor*); Leyte (*Steere Exp., Whitehead*); Mindanao (*Murray, Everett, Koch & Schadenberg, Steere Exp., Bourns & Worcester, Goodfellow, Celestino*); Nipa (*Everett*); Panaon (*Everett*); Samar (*Steere Exp., Bourns & Worcester, Whitehead*).

Adult.—Similar to *Dicrurus balicassius,* but mantle, back, and rump velvety blue-black with a very slight gloss; feathers of crown scale-like and glossy; long lanceolate feathers on sides of neck dark glossy green; under parts blue-black; throat and chest spangled with glossy steel-blue. A male from Bohol measures: Wing, 134; tail, 103; depth of fork, 6; bill from notril, 22; depth of bill at nostril, 10; tarsus, 22. A female from Basilan, wing, 135; tail, 112; bill from nostril, 21; depth of bill at nostril, 10; tarsus, 21.

In general appearance the southern drongo resembles a *Chibia,* but the tail is even less forked than in *D. balicassius.*

This species was very abundant near Isabela, Basilan. A female, taken January 15, differs from the usual specimens in having the feathers of lower breast and abdomen tipped with gray. A pensile nest of this species, found on March 12, is composed of plant fibers. Its inside diameter is 76 mm. and its inside depth is 50 mm. The three eggs are light cream, almost white, in color, decorated with faint spots of pale lilac and brighter spots of reddish brown, mostly near the larger end of the egg. The eggs measure: 28.9 by 19.3; 29.2 by 19; 29.4 by 19.5.

"Habits like those of *D. balicassius.* Abundant in Mindanao and Basilan. Two males from the latter island average: Length, 250; wing, 130; tail, 116; culmen, 32; tarsus, 22; middle toe with claw, 23. Three females, length, 250; tail, 113; wing, 132; culmen, 34; tarsus, 21; middle toe with claw, 23.6. Iris, legs, feet, and nails black; bill black, except tip of lower mandible, which is often white." (*Bourns and Worcester MS.*)

718. **DICRURUS SULUENSIS** Hartert.

SULU DRONGO.

Dicrurus suluensis HARTERT, Novit. Zool. (1902), 9, 441; MCGREGOR and WORCESTER, Hand-List (1906), 107.

Lapoc, off Siasi (*Bartsch*); Sulu (*Guillemard, Bourns & Worcester*).

"The Sulu form differs from the Sula bird in smaller size (wings and tail) and somewhat smaller glossy spangles on the breast and from

D. borneensis in having a larger bill and longer tail." (*Hartert.*) Measurements of this species are given as follows: "Wing, 145 to 155; tail, 133 to 136; bill, 34 to 36."

719. **DICRURUS MIRABILIS** Walden and Layard.

WHITE-BELLIED DRONGO.

Dicrurus mirabilis WALDEN and LAYARD, Ibis (1872), 103, pl. 5; SHARPE, Cat. Birds Brit. Mus. (1877), 3, 231; WHITEHEAD, Ibis (1899), 101 (voice); MCGREGOR and WORCESTER, Hand-List (1906), 107.

Ca-uac-uac, Ticao.

Bantayan (*McGregor*); Cebu (*Everett, McGregor*); Guimaras (*Steere Exp.*); Masbate (*Steere Exp., Bourns & Worcester, McGregor*); Negros (*Layard, Meyer, Steere, Everett, Steere Exp., Bourns & Worcester, Whitehead, Celestino*); Panay (*Steere Exp., Bourns & Worcester*); Ticao (*McGregor*).

Adult (*sexes alike*).—Black, glossed with steel-green like *D. balicassius,* but lower breast, abdomen, and crissum pure white. A male from Ticao Island measures: Length, 280; wing, 142; tail, 121; bill from nostril, 23; depth of bill at nostril, 11.5; tarsus, 13. A female from the same island, wing, 137; tail, 120; bill from nostril, 21; depth of bill at nostril, 11; tarsus, 24.

"Bourns thought that he saw an individual of this species in Siquijor on one occasion, but he failed to secure it, and it was not again met with in the island. If it occurs there, it must be very rare. It is rather more shy than the other Philippine representatives of the genus.

"Four males from Cebu average: Length, 260; wing, 137; tail, 117; culmen, 33; tarsus, 23; middle toe with claw, 25. Five females, length, 260; wing, 137; tail, 119; culmen, 33; tarsus, 23; middle toe with claw, 25. Specimens from other localities agree closely in dimensions with the above. Bill, legs, feet, and nails black. Food insects. Breeding in June and July." (*Bourns and Worcester MS.*)

Genus CHIBIA Hodgson, 1836.

Tail deeply forked, outermost pair of rectrices with the tips curved upward and more or less rotated. Plumage entirely black, glossed with green and blue; back velvety black with little or no blue gloss; breast black, spangled with glossy steel-green.

Species.

a^1. Tail shorter than wing.
  b^1. Tips of outer rectrices less recurved.
    c^1. Smaller; wing, about 135 mm .... **palawanensis** (p. 706)
    c^2. Larger; Wing, about 150 mm.
      d^1. Bill larger .... **cuyensis** (p. 706)
      d^2. Bill smaller .... **borneensis** (p. 707)
  b^2. Tips of outer rectrices more recurved; wing, 150 mm .... **worcesteri** (p. 707)
a^2. Tail much longer than wing; outermost rectrices longer than the next pair by about twice the tarsus .... **menagei** (p. 708)

720. **CHIBIA PALAWANENSIS** (Tweeddale).

PALAWAN DRONGO.

Dicrurus palawanensis TWEEDDALE, Proc. Zool. Soc. (1878), 614.
Chibia palawanensis SHARPE, Ibis (1888), 199; MCGREGOR and WORCESTER, Hand-List (1906), 107.

Balabac (*Everett*); Calamianes (*Bourns & Worcester, McGregor*); Palawan (*Everett, Whitehead, Platen, Steere Exp., Bourns & Worcester, Celestino, White*).

Adult (*sexes similar*).—Above blue-black; feathers of crown with glossy scale-like tips, upper tail-coverts, wings, and tail glossy steel-green; sides of neck with glossy green, lanceolate feathers; under parts black; feathers of lower throat and chest somewhat acute and with glossy scale-like tips; the outermost rectrices slightly upturned and twisted near the tip. A male from Palawan measures: Wing, 135; tail, 125; bill from nostril, 21; depth of bill at nostril, 10; tarsus, 23; difference in length between middle and outermost rectrices, 20. A female, wing, 132; tail, 120; bill from nostril, 21.5; depth of bill at nostril, 10; tarsus, 24.

"Habits like those of *Dicrurus balicassius* and *D. striatus*. Five males average: Length, 273; wing, 136; tail, 121; culmen, 33; tarsus, 23; middle toe with claw, 25. Five females, length, 267; wing, 133; tail, 118; culmen, 33; tarsus, 23; middle toe with claw, 24. Iris dark brown to black; bill, legs, feet, and nails black." (*Bourns and Worcester MS.*)

721. **CHIBIA CUYENSIS** McGregor.

CUYO DRONGO.

Chibia cuyensis MCGREGOR, Bull. Philippine Mus. (1903), 1, 5; MCGREGOR and WORCESTER, Hand-List (1906), 107.

Tam-bi-bi-li-gao, Cuyo.
Cuyo (*McGregor*).

Adult (*sexes alike*).—Wing, tail, and upper tail-coverts dark glossy green; all other parts dark blue-black; feathers of crown, nape, and breast tipped with glossy blue-black; some long hackles on sides of neck; back slightly metallic; outermost rectrices slightly upturned and twisted near the tip. A male (type) measures: Length, 305; wing, 152; tail, 130; bill from nostril, 23; depth of bill at nostril, 12; tarsus, 28; difference in length between the middle and outermost rectrices, 9. A female, wing, 145; tail, 124; bill from nostril, 11.5; tarsus, 27.

This species differs from *C. palawanensis* in being larger and in having the bill longer and deeper; spangles on chest larger.

722. CHIBIA WORCESTERI McGregor.

WORCESTER'S DRONGO.

Chibia worcesteri McGregor, Bur. Govt. Laboratories (1905), 34, 26; McGregor and Worcester, Hand-List (1906), 107.

Semirara (*Worcester*).

Male.—Similar to *Chibia cuyensis* and to *C. palawanensis*, but with the outermost rectrices more recurved than in either of these; wing longer than in *C. cuyensis;* bill longer and deeper than in *C. palawanensis*. The type and only specimen measures: Length, 292; wing, 150; tail, 136; bill from nostril, 22; depth of bill at nostril, 11; tarsus, 24; difference in length between the middle and outermost rectrices, 20.

723. CHIBIA BORNEENSIS Sharpe.

BORNEAN DRONGO.

Chibia borneensis Sharpe, Proc. Zool. Soc. (1879), 246; Worcester and Bourns, Proc. U. S. Nat. Mus. Wash. (1898), 20, 558, no. 298: McGregor and Worcester, Hand-List (1906), 107.

Chibia pectoralis Guillemard, Proc. Zool. Soc. (1885), 259, 418.

Chibia cagayanensis Mearns, Proc. U. S. Nat. Mus. (1909), 36, 447.*

Bongao (*Everett*); Cagayan Sulu (*Guillemard, Mearns*); Sibutu (*Everett*); Tawi Tawi (*Bourns & Worcester*). Borneo.

Similar to *C. pectoralis* (Sula Island). "but it may be recognized on comparison by the much smaller and more metallic spots on the throat and fore neck, which are steel-green, as also are the neck-hackles. In *C. pectoralis* the spangles are large, dull, and inclined to purplish in tint. This species appears to me to be a thorough *Chibia*. * * *." (*Sharpe.*)

"The young bird from Kina Balu differs from the adult in being duller black, with fewer and less metallic chest-spots and hackles." (*Sharpe.*) †

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* This recently published description is based upon one specimen and the species is compared with neither *Chibia borneensis* nor *C. pectoralis*. Mearns's description follows:

"*Characters.*—Very similar to *Chibia palawanensis*, differing only in its somewhat larger size, shallower forking of the tail, the narrower and very much smaller spangles on the breast, and in the absence of metallic green on the upper tail-coverts.

"*Measurements of skin* (type and only specimen).—Length, 260; wing, 136; tail, 126; emargination of tail, 16; culmen (chord), 28.5; tarsus, 24.5." (*Mearns.*)

† The description of *Chibia borneensis* follows: "C. similis C. pectorali ex insulis Sulaensibus, sed plumis lanceolatis colli lateralis metallice chalybeo-viridibus nec purpurascentibus, et maculis jugularibus et praepectoralibus valde minoribus et conspicue metallicis chalybeo-viridibus distinguenda. Long. tot. 10, culm. 1.3. alae 5.9, caudae, 4.5, tarsi 0.85." (*Sharpe.*)

"Guillemard thought his Cagayan Sulu specimens to be of the same species with those from Sulu, though he mentions the lack of frontal plumes in the former. Dr. Sharpe has shown that the Sulu-Tawi Tawi birds must be referred to *C. borneensis,* and if Guillemard was right in believing the Cagayan Sulu birds to be identical with those from Sulu, *C. pectoralis* must be excluded from the list of Philippine birds.

"Five males from Sulu average: Length, 284; wing, 150; tail, 132; culmen, 35; tarsus, 24; middle toe with claw, 26. Eight females, length, 273; wing, 149; tail, 123; culmen, 32.5; tarsus, 23; middle toe with claw, 24. Iris chocolate-brown to dark red; bill, legs, feet, and nails black. Food insects." (*Bourns and Worcester MS.*)

724. **CHIBIA MENAGEI** Bourns and Worcester.

MENAGE'S DRONGO.

Chibia menagei BOURNS and WORCESTER, Minnesota Acad. Nat. Sci. Occ. Papers (1894), 1, 15; MCGREGOR and WORCESTER, Hand-List (1906), 107; MCGREGOR, Phil. Jour. Sci. (1906), 1, 775, pl. 4.

Tablas (*Bourns and Worcester, Celestino*).

Adult.—Very similar in colors to *C. palawanensis,* but distinguished from that and all other Philippine species of the genus by the extremely long and very deeply forked tail. A male in worn plumage measures: Length, 355; wing, 141; tail (chord of longest feather), 187; bill from nostril, 22.5; depth of bill at nostril, 11; tarsus, 25; difference in length between the middle and outermost rectrices, 73; distance between tips of outermost rectrices, 120.

"Average measurements of nine males: Length, 336; culmen, 34.7; wing, 137; tail, 175; tarsus, 25. Of seven females: Length, 327; culmen, 34.7; wing, 136; tail, 168; tarsus, 26. This curious species is by far the largest representative of its genus yet discovered in the Philippine Islands, and differs strikingly from both the other known species, one of which is confined to Palawan and the Calamianes Islands, while the other occurs in the Sulu Group and in Cagayan Sulu. *C. menagei* seems to be strictly confined to the Island of Tablas where it is not rare in the deep woods." (*Bourns and Worcester.*)

"Iris very dark brown; bill, legs, feet, and nails black. Food insects." (*Bourns and Worcester MS.*)

Genus BHUCHANGA Hodgson, 1836.

Tail deeply forked and slightly shorter than wing; rectrices much narrower than in either *Dicrurus* or *Chibia,* the outermost pair slightly upturned at tips. Prevailing colors of plumage blue-gray and cinereous.

725. BHUCHANGA PALAWANENSIS Whitehead.

PALAWAN GRAY DRONGO.

Buchanga leucophæa SHARPE, Ibis (1888), 199.

Buchanga palawanensis WHITEHEAD, Ibis (1893), 47; MCGREGOR and WORCESTER, Hand-List (1906), 108.

Dicrurus leucophæus var. *whiteheadi* DUBOIS, Syn. Av. (1901), fasc. 8, 530, no. 1772.

Balabac (*Everett*); Calamianes (*Bourns & Worcester, McGregor*); Palawan (*Steere, Everett, Lempriere, Platen, Whitehead, Steere Exp., Bourns & Worcester, Celestino, White*).

Adult.—Upper parts blue-gray with a slight gloss on head and back; forehead and lores black; cheeks and ear-coverts blackish; chin and throat cinereous becoming somewhat bluer on the breast and abdomen; under tail-coverts tipped with white; wings and tail blackish brown, but the exposed edges of most of the feathers cinereous; axillars and wing-lining blue-gray. A male from Palawan measures: Length, 354; wing, 124; tail, 120; depth of fork, 26; bill from nostril, 17; tarsus, 17. A female, wing, 125; tail, 123; bill from nostril, 17; tarsus, 15.

"We adopt Whitehead's title for this bird with some hesitation. He states that it differs from *B. leucophæa* in its smaller size, darker color, and in having a jet-black patch of feathers over the nostrils. He adds that the eye in *B. leucophæa* is brick-red, and in *B. palawanensis* dark gray. As regards the latter point Whitehead is certainly in error. On examining the labels of the twenty specimens collected by us in Palawan and the Calamianes Islands we find that the iris was red or brick-red in nineteen cases and reddish brown in the twentieth. The difference in color could be verified only by actual comparison for which we have not the necessary material. We add full measurements, hoping that they may be of use to some one in settling the question of the relative size of the two alleged species. Four males average: Length, 267; wing, 129; tail, 127; culmen, 26; tarsus, 17; middle toe with claw, 18.5. Eight females, length, 251; wing, 125; tail, 126; culmen, 25; tarsus, 17.5; middle toe with claw, 19. Iris brick-red; bill, legs, feet, and nails black." (*Bourns and Worcester MS.*)

Family **STURNIDÆ.**

Bill stout and pointed; culmen curved or nearly straight; rictal bristles minute when present; nostrils exposed, or else concealed by antrorse frontal plumes; wing either moderate or long, primaries much longer than secondaries; first primary shorter than primary-coverts; second primary nearly, or quite, as long as the third; tail square, or else the rectrices graduated; tarsus stout, distinctly scutellate in front and bilaminate behind.

Subfamily STURNINÆ.

The arrangement of the genera here placed in the subfamily *Sturninæ* is far from satisfactory. Oates, Fauna of British India, Birds (1889), 1, 509, has established the family *Eulabetidæ* for the reception of two of these genera, *Eulabes* and *Calornis* (=*Lamprocorax*), and at the same time says: "Probably *Eulabes* should not be associated with *Calornis,* but rather with the subfamily *Sibiinæ* of the *Crateropodidæ.*" It is true that *Eulabes* and *Calornis,* as well as *Sarcops* and *Goodfellowia,* present some well-marked differences from typical starlings, such as the members of *Sturnia,* and some rearrangement of these genera may become necessary.

Genera.

a^1. Circumocular region fully feathered; no bare space nor fleshy wattle anywhere on the head.
  b^1. Frontal feathers short; nostrils exposed.
    c^1. Plumage largely white and gray; frontal feathers not soft and pile-like.
      d^1. Bill shorter and stouter; wing, 105 mm. or less............ **Sturnia** (p. 710)
      d^2. Bill longer and more slender; wing, 115 mm. or more. **Spodiopsar** (p. 713)
    c^2. Plumage entirely glossy greenish black; frontal plumes soft and pile-like. **Lamprocorax** (p. 715)
  b^2. Frontal feathers long, erect or antrorse, forming a compressed fan-shaped covering to base of bill; nostrils entirely concealed...... **Ætheopsar** (p. 717)
a^2. Circumocular region naked; or else with large fleshy wattles on nape and bare spaces on sides of face.
  b^1. Tail longer, rectrices strongly graduated; a large unfeathered space around each eye.
    c^1. Without a crest; tail shorter than wing.............................. **Sarcops** (p. 718)
    c^2. With a crest of long decomposed feathers springing from the crown; tail much longer than wing... **Goodfellowia** (p. 720)
  b^2. Tail shorter and nearly square; narrow naked spaces below and behind each eye; a large fleshy wattle on each side of nape................ **Eulabes** (p. 720)

Genus STURNIA Lesson, 1837.

Bill rather stout, much shorter than head; culmen curved near its tip; nasal membrane covered with short feathers; frontal plumes not conspicuously developed; head without bare spaces; rectrices very slightly graduated and extending little, if at all, beyond the rather short toes.

Species.

a^1. Primaries and secondaries without white edges; tail broadly tipped with white, gray, or salmon-buff.
  b^1. Secondary-coverts entirely white, light gray, or salmon-buff (adult). **sinensis** (p. 711)
  b^2. Secondary-coverts black, edged with gray; or else some of the coverts white (young) .... **sinensis** (p. 711)
a^2. Outer primaries and secondaries edged with white on outer webs; tail without a light tip.
  b^1. Throat and breast unstreaked (adult); lower throat, ear-coverts, and sides of neck vinous-chestnut (male); ear-coverts and sides of neck faintly washed with reddish brown (female) .... **philippensis** (p. 712)
  b^2. Throat and breast streaked with dull olive-brown (young). **philippensis** (p. 712)

726. STURNIA SINENSIS (Gmelin).

GRAY-BACKED STARLING.

Oriolus sinensis GMELIN, Syst. Nat. (1788), 1, 394.

Sturnia sinensis SHARPE, Cat. Birds Brit. Mus. (1890), 13, 68; MCGREGOR, Bull. Philippine Mus. (1903), 1, 6; MCGREGOR and WORCESTER, Hand-List (1906), 108.

Calayan (*McGregor*); Luzon (*McGregor, Celestino*). China, Hainan, Formosa, Siam; in winter to Cochin China, southern China, Pegu, and Malacca.

Adult male (*Calayan Island, September*).—Above smoke-gray; forehead whitish; primaries, secondaries, primary-coverts, and alula black slightly glossed with green, secondaries narrowly edged with white; secondary-coverts, scapulars, edge of wing, axillars, and wing-lining white; rectrices black, glossed with green, all but the middle pair with broad white tips; under parts white, light smoke-gray across the chest. Bill pale stone-gray; iris white; legs and nails light brown. Length, 197; wing, 105; tail, 62; culmen from base, 20; bill from nostril, 13; tarsus, 25.

Adult female (*Manila, January*).—Very similar to the male from Calayan, but the white and gray areas dark smoky gray, probably due to smoke stain. Iris pale blue. Length, 190; wing, 100; tail, 57; culmen from base, 19; tarsus, 25.

Immature female (*Manila, January*).—Similar to the adult, but secondary-coversts glossy black with light edgings.

Male (*Malabon, near Manila, March*).—Similar to the male from Calayan, but fore part of head, face, chin, secondary-coverts, scapulars, upper tail-coverts, sides, flanks, under tail-coverts, and tips of rectrices ochraceous-buff. Wing, 102; tail, 60; culmen from base, 18; tarsus, 23.

The gray-backed, or Chinese, starling has been taken in the Philippines but rarely; in addition to the specimens recorded by me from Calayan and Luzon, we have two specimens that were killed near Manila.

727. STURNIA PHILIPPENSIS (Forster).

VIOLET-BACKED STARLING.

Motacilla philippensis FORSTER, Ind. Zool. (1781), 41.
Motacilla violacea BODDAERT, Tabl. Pl. Enl. (1783), 11.
Sturnia violacea SHARPE, Cat. Birds Brit. Mus. (1890), **13**, 70.
Sturnia philippensis MCGREGOR, Bur. Govt. Laboratories, Manila (1905), **25**, 30; MCGREGOR and WORCESTER, Hand-List (1906), 108.

Bi-lit' chí-na, Calayan.

Calayan (*McGregor*); Luzon (*Heriot, McGregor*); Mindanao (*Steere*); Mindoro (*Bourns & Worcester*); Negros (*Steere*); Palawan (*Platen, Bourns & Worcester, White*); Tawi Tawi (*Bourns & Worcester*). Japan; in winter to Borneo, Celebes, and the Moluccas.

Adult male (*Calayan Island, October*).—Forehead, crown, lores, chin, middle of throat, and area about eye white, dingy on top of head; neck, scapulars, and back black, glossed with purple; rump and upper tail-coverts white; chest, sides of neck, and ear-coverts vinous-chestnut or bay, extending as a narrow band onto each side of hind neck and forming a nearly complete collar; sides of breast, sides of body, and flanks ash-gray; middle of breast, abdomen, thighs, and crissum white; wings black. glossed with green; outer primaries edged with white; some of the secondaries edged with white toward the base; middle and lesser secondary-coverts, edge of wing, axillars, and wing-lining white; tail black, glossed with green; outermost pair of rectrices with outer webs white except near tips. Bill black, base of lower mandible white; iris brown; legs and feet dark green; nails brown. Length, 180; wing, 105; tail, 50; culmen from base, 18; bill from nostril, 12; tarsus, 24.

Adult female (*Calayan, October*).—Resembles somewhat the female of *Sturnia sinensis.* Upper parts dingy brown with no gloss except on wings and tail; head, rump, and tail-coverts dirty whitish; under parts white, sides of breast and of abdomen faintly gray; ear-coverts and sides of neck washed with chestnut-brown; primaries and primary-coverts black, glossed with green on the outer edges; second, third, and fourth primaries edged with white or whitish on outer webs; secondaries glossy brown, the three outer ones widely edged with white except at tips; secondary-coverts brown, the median coverts with broad white tips; alula quills black, edged with white; tail glossy blackish, outermost rectrices with whitish edges. Wing, 105; tail, 48; culmen from base, 18; tarsus, 24.

Immature (*Calayan, October*).—Resembles the adult female, but the upper parts more earthy brown; secondary-coverts all brown, the median series with whitish tips; under parts whitish, ashy on the sides; throat and chest streaked with dull earthy brown.

The violet-backed starling, like the next preceding species, is of irregular occurrence in these Islands. A very large flock was observed on Calayan Island in October, 1903.

"A winter migrant occasionally met with in small flocks. Three males from Tawi Tawi average: Length, 180; wing, 100; tail, 52; culmen, 17.5; tarsus, 23; middle toe with claw, 25. Two females, length, 178; wing, 103; tail, 51; culmen, 17; tarsus, 23; middle toe with claw, 27. Iris black; legs and feet dark olive; upper mandible black, lower black at tip, gray at base." (*Bourns and Worcester MS.*)

Genus SPODIOPSAR Sharpe, 1889.

Similar to *Sturnia,* but bill longer and more slender; feathers of occiput and nape lanceolate, forming a short broad crest.

Species.

*a*¹. Wing shorter; outer webs of primary-coverts white; bases of primaries white. sericeus (p. 713)

*a*². Wing longer; outer webs of primary-coverts seal-brown; bases of primaries brown .... cineraceus (p. 714)

728. SPODIOPSAR SERICEUS (Gmelin).

SILKY STARLING.

Sturnus sericeus GMELIN, Syst. Nat. (1788), 1, 805.

Heterornis sericea CASSIN, Ornith. Perry Japan Exped., Washington (1856), 2, 238, pl. 5.

Poliopsar sericeus SHARPE; Cat. Birds Brit. Mus. (1890), 13, 44 (generic name emended to *Spodiopsar,* addenda, p. 665).

Spodiopsar sericeus McGREGOR, Bull. Philippine Mus. (1904), 4, 24; McGREGOR and WORCESTER, Hand-List (1906), 108.

Calayan (*McGregor*). Central and southern China.

"*Adult.*—General color above light ashy gray, a little darker on the hind neck, where the feathers are long and lanceolate; scapulars like the back, externally white, with a subterminal shade of black; rump and upper tail-coverts a little lighter gray, with ashy whitish margins; lesser wing-coverts blackish, edged with slaty gray; median coverts glossy purplish black; greater coverts black, externally glossy green, with purple reflections, velvety black interiorly; alula-feathers black, externally white; primary-coverts white, black near the center of the tips of the feathers; quills black, the primaries externally glossy purple, and white at the extreme base; the secondaries externally glossy green, like the greater coverts, bluish or purple toward the ends; center tail-feathers glossy green, the remainder black, externally bluish green or purple; crown of head and nape, sides of face, ear-coverts, cheeks, throat, sides of neck, and fore neck white, followed by an ashy gray breast; abdomen white; sides of body and flanks pale ashy gray tinged with brown; thighs white, ashy gray posteriorly; under tail-coverts white; under wing-coverts and axillars white; quills below dusky, ashy brown along the inner edge, the base of the quills white. 'Bill bright red, with the tips white; feet orange; iris black, with a light circle.' (*David.*) Length, 198; culmen, 25; wing, 120; tail, 61; tarsus, 29.

"All the males [in the British Museum], so marked, are of a delicate gray, and vary very slightly in the direction of a whiter or a browner head. A female collected by Mr. Reeves at Ningpo is altogether browner, rather more ashy on the rump; the gloss on the wings and tail less distinct; primary-coverts blackish brown near the base, white at the ends, with a central black streak; head whitish, ashy gray on sides of crown and hind neck; sides of face whitish, ashy on the cheeks; under surface of body as in the male, but light brown instead of gray. This specimen is apparently immature." (*Sharpe.*)

A solitary female of the silky starling was obtained on Calayan Island in November, 1903. Iris dirty white; legs bright yellow; nails yellowish brown; basal one-half of bill reddish yellow; terminal half dusky. Length, 216; wing, 118; tail, 71; culmen from base, 24; bill from nostril, 16; tarsus, 29; middle toe with claw, 30.

729. SPODIOPSAR CINERACEUS (Temminck).

ASHY STARLING.

Sturnus cineraceus TEMMINCK, Pl. Col. (1827), 2, pl. 556.
Poliopsar cineraceus SHARPE, Cat. Birds Brit. Mus. (1890), 13, 41 and addenda, 665.
Spodiopsar cineraceus OATES, Fauna Brit. Ind. Birds (1889), 1, 524; MEARNS, Phil. Jour. Sci. (1907), 2, sec. A, 353.

Luzon (*Mearns*). Eastern Siberia, Japan, China, Formosa, Upper Burma.

"*Coloration.*—Forehead, crown, nape, and sides of neck black, the forehead streaked with white; lores, ear-coverts, and round the eye white, streaked with black; chin and throat dark ashy brown with paler and indistinct shaft-streaks; breast ashy, slightly paler than throat; sides of the body and thighs rufous ashy; abdomen and under tail-coverts white; back, scapulars, rump, and upper tail-coverts drab-brown with a broad white bar across the rump; tail drab-brown with broad white tips to all the inner webs of the feathers except the middle pair; wing-coverts and tertials bronzy brown; remainder of wing blackish, the primaries narrowly, the secondaries more broadly, margined with white on the outer webs; under wing-coverts and axillars white, a few feathers of the former partially margined with brown.

"The youngest bird I have seen has the whole plumage russet-brown, the inner webs of the tail-feathers tipped with white, the quills of the wing edged with paler brown; the ear-coverts whitish; the chin nearly pure white.

"Between this young bird and the adult above described there is every possible gradation of plumage. The nestling is probably streaked below.

"'Iris brown surrounded by white; bill orange; the tip horny; the base of the lower mandible and the angle of the mantle brownish green; legs yellow.' (*David and Oustalet.*) Length, about 229; tail, 71; wing, 132; tarsus, 32; bill from gape, 33." (*Oates.*)

The gray starling is known as a member of the Philippine ornis from a single specimen collected in northern Luzon by Doctor Mearns. This specimen has the chin, throat, and crest mottled with white and there is much white on the forehead and sides of head.

Genus LAMPROCORAX Bonaparte, 1853.

Bill stout, strongly compressed except toward base; culmen strongly curved throughout; gonys straight; feathers on nasal membrane short and pile-like; feathers of head, face, and throat lanceolate; tail moderate in length; rectrices narrow and graduated, their tips rounded; plumage entirely glossy black.

Species.

a^1. Larger; wing, 105 mm.; tail, 75	**panayensis** (p. 715)
a^2. Smaller; wing, 95 mm.; tail, 59	**todayensis** (p. 716)

730. LAMPROCORAX PANAYENSIS (Scopoli).

PHILIPPINE GLOSSY STARLING.

Muscicapa panayensis SCOPOLI, Del. Flor. et Faun. Insubr. (1783), 2, 96.

Calornis panayensis SHARPE, Cat. Birds Brit. Mus. (1890), 13, 147; GRANT and WHITEHEAD, Ibis (1898), 244, pl. 6, fig. 1 (egg) WHITEHEAD, Ibis (1899), 241 (habits).

Lamprocorax panayensis OBERHOLSER, Proc. Acad. Nat. Sci. Philad. (1899), 51, 216.

Lamprococorax panayensis MCGREGOR and WORCESTER, Hand-List (1906), 109 (error).

Ga-lang-si-ang', Bohol; *lu-ci-ang*, Cagayancillo; *ma-ma-di-ang'*, Cuyo; *co-ra-cling*, Manila.

Agutaya (*McGregor*); Balabac (*Everett*); Bantayan (*McGregor*); Basilan (*Everett, Steere Exp., Bourns & Worcester, McGregor*); Batan (*McGregor*); Bohol (*Everett, McGregor*); Bongao (*Everett*); Cagayancillo (*McGregor*); Cagayan Sulu (*Guillemard, McGregor*); Calamianes (*Bourns & Worcester, McGregor*); Caluya (*Porter*); Camiguin N. (*McGregor*); Camiguin S. (*Murray*); Catanduanes (*Whitehead*); Cebu (*Meyer, Everett, Steere Exp., Bourns & Worcester, McGregor*); Cuyo (*McGregor*); Fuga (*McGregor*); Guimaras (*Steere Exp.*); Leyte (*Everett*); Libagao (*Porter*); Luzon (*Meyer, Möllendorff, Steere Exp., Bourns & Worcester, Whitehead, McGregor, Bartsch*); Marinduque (*Steere Exp.*); Masbate (*Bourns & Worcester, McGregor, Bartsch*); Mindanao (*Everett, Steere Exp., Goodfellow*); Mindoro (*Steere Exp., Bourns & Worcester, McGregor*); Negros (*Meyer, Everett, Steere Exp., Bourns & Worcester, Keay*); Nipa (*Everett*); Palawan (*Steere, Everett, Platen, Whitehead, Lempriere, Steere Exp.,* *Bourns & Worcester, White*); Panay (*Steere, Bourns & Worcester*); Papahag (*Bartsch*); Polillo (*McGregor*); Romblon (*Bourns & Worcester*); Samar (*Bourns & Worcester*); Semirara (*Worcester*); Siasi (*Guillemard*); Sibutu (*Everett*); Sibuyan (*Bourns & Worcester, McGregor*); Siquijor (*Steere Exp., Bourns & Worcester, Celestino*); Sulu (*Burbidge, Bourns & Worcester*); Tablas (*Bourns & Worcester*); Tawi Tawi (*Bourns & Worcester*); Ticao (*McGregor*).

Adult (*sexes alike*).—Entirely black, strongly glossed with green, except the remiges and rectrices which have but little gloss; when held away from the light the feathers show slight purple reflections. Iris bright red; bill, legs, and nails black. Length, about 215. A male from Bohol measures: Wing, 106; tail, 74; culmen from base, 25; bill from nostril, 15; tarsus, 22. A female from Bohol, wing, 104; tail, 72; culmen from base, 20; bill from nostril, 14; tarsus, 22.

Young.—Above blackish, slightly glossed with green; sides of head and of neck and under parts white or yellowish, streaked with blackish brown, the streaks narrowest on throat, widest on sides of breast and on flanks.

"Five males average: Length, 224; wing, 106; tail, 75; culmen, 22; tarsus, 21; middle toe with claw, 24. Four females, length, 212; wing, 102; tail, 69; culmen, 20; tarsus, 20; middle toe with claw, 24." (*Bourns and Worcester MS.*)

Three eggs of the Panay glossy starling collected by Whitehead in Isabela Province, Luzon, are described as follows: "Shape sharp ovate. Ground-color beautiful sea-green, blotched and spotted toward the large end with pale reddish lilac under-markings and sienna over-markings. Measurements, 27 mm. by 19 mm." (*Grant and Whitehead.*)

731. LAMPROCORAX TODAYENSIS Mearns.

TODAYA GLOSSY STARLING.

Lamprocorax todayensis MEARNS, Proc. Biol. Soc. Wash. (1905), 18, 88; GRANT, Ibis (1906), 469.

Lamprococorax todayensis MCGREGOR and WORCESTER, Hand-List (1906), 109 (error).

Kohl-leé-po, Bagobos of Todaya.

Mindanao (*Mearns, Goodfellow*).

Female (*type*).—"Similar to *L. panayensis*, but much smaller, and otherwise differing as follows: The feathers of the nape and lower throat are more rigid and, perhaps, relatively longer; viewed in certain lights the plumage is less golden green, the gloss being purplish blue; the wings and tail are dull, purplish black, without metallic gloss; and the throat is more decidedly glossed with violet-purple. Length of skin, 157; wing, 95; tail, 59; culmen, 13.5; bill from nostril, 10; depth of bill at nostrils, 6; tarsus, 19." (*Mearns.*) "Iris ruby-red; bill and feet black." (*Goodfellow.*)

"This small species of glossy starling was abundant in the high forest above the Bagobo village of Todaya, where small flocks flew with great speed above the treetops, only alighting on the highest dry branches, where they were with difficulty reached by shot." (*Mearns.*)

Genus ÆTHEOPSAR Sharpe. 1890.

Frontal and nasal feathers long, antrorse or erect, and concealing the nostrils; feathers of crown, occiput, and ear-coverts lanceolate; tail short and rounded; plumage nearly all black or slate-gray; tips of primary-coverts and a large section of primaries pure white, forming a conspicuous wing-bar.

732. **ÆTHEOPSAR CRISTATELLUS** (Linnæus).

CRESTED MYNA.*

Gracula cristatella LINNÆUS, Syst. Nat. ed. 10 (1758), **1**, 109.
Acridotheres cristatellus SHARPE, Cat. Birds Brit. Mus. (1890), **13**, 92; WHITEHEAD, Ibis (1899), 241.
Ætheopsar cristatellus SHARPE, Cat. Birds Brit. Mus. (1890), **13**, 666; MCGREGOR and WORCESTER, Hand-List (1906), 108.

Mar-tí-nez, Manila.

Luzon (*Meyer, Everett, Steere Exp., Bourns & Worcester, McGregor, Celestino, Bartsch*). Central and southern China.

Adult (*sexes similar*).—General color black, slightly ashy on the breast; crown and back faintly glossed with green and purple; under tail-coverts and rectrices tipped with white; a wide basal band of white across the primaries. Male from Manila: Iris yellow-ocher; bill pale green, brown at base; legs and feet dark yellow; nails horn-color. Length, 270; wing, 134; tail, 83; culmen from base, 25; bill from nostril, 17; tarsus, 39. Female from Manila: Iris light orange with a narrow outer yellow ring; bill greenish white; legs dull yellow; nails horn-gray. Length, 250; wing, 130; tail, 81; culmen from base, 25; bill from nostril, 16; tarsus, 38.

"*Young.*—Brown instead of black, with no crest on the head, only the frontal plumes being close-set. 'Bill yellowish horn-color; roof of mouth, inside of bill, and tip of tongue yellow, the rest flesh-color with a bluish-black tinge; legs light brownish yellow on the under parts, sole, and joints of scales, the rest purplish brown, darker on the claws; iris slight greenish yellow.' (*R. Swinhoe.*)" (*Sharpe.*)

"Very abundant about the city of Manila. Quite common about the Laguna de Bay." (*Bourns and Worcester MS.*)

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* The name myna is restricted by Jerdon, and other writers on Indian ornithology, to the species of *Acridotheres* and *Temenuchus*, while the species of *Eulabes* are called hill mynas. Mina, maina, and minor are merely variants of myna.

Genus SARCOPS Walden, 1875.

Bill stout and as long as head; culmen gently curved; base of upper mandible covered with short feathers as far as the nostrils, but the latter exposed; rictal bristles short; sides and top of head naked, except a narrow median line; tail a little shorter than wing: rectrices graduated; upper parts largely silvery gray; wings, tail, and under parts black.

733. **SARCOPS CALVUS** (Linnæus).

GRAY-BACKED COLETO.

Gracula calva LINNÆUS, Syst. Nat. ed. 12 (1766), **1**, 164.

Sarcops calvus SHARPE, Cat. Birds Brit. Mus. (1890), **13**, 97 (part); GRANT, Ibis (1895), 258, 456; (1896), 469 (notes on the geographical races); WHITEHEAD, Ibis (1899), 241 (habits, nest, voice); MCGREGOR and WORCESTER, Hand-List (1906), 109 (part).

Sarcops lowii SHARPE, Trans. Linn. Soc. 2d. ser. Zool. (1877), **1**, 344. (Sibutu).*

Co-ling, Mindoro; *i-ling*, Ticao; *sa-ling*, Masbate; *co-le-to*, Manila.

Basilan (*Everett, Steere Exp., Bourns & Worcester, McGregor*); Bongao (*Everett*); Guimaras (*Meyer, Steere Exp.*); Libagao (*Porter*); Lubang (*McGregor*); northern Luzon (*Cuming, Kittlitz, Everett, Steere Exp., Whitehead, McGregor*); Maestre de Campo (*McGregor & Worcester*); Marinduque (*Steere Exp.*); Mindanao (*Everett, Steere Exp., Bourns & Worcester*); Mindoro (*Steere Exp., Schmacker, Bourns & Worcester, Everett, McGregor*); Papahag (*Bartsch*); Semirara (*McGregor & Worcester*); Sibay (*McGregor & Worcester*); Sibutu (*Low, Everett*); Sulu (*Guillemard, Bourns & Worcester*); Tablas (*Bourns & Worcester*); Tawi Tawi (*Bourns & Worcester*); Verde (*McGregor*).

Adult (*sexes alike*).—Forehead, lores, face, vertical line, and a narrow band on occiput black; wings and tail black; sides of neck, mantle, back, rump, and tail-coverts silvery gray; under parts black; a patch on each side of chest pure white; flanks silvery white; in some specimens the throat is marked with fine white lines. Iris pinkish; bill, legs, feet, and nails black. Length, 265 to 290. A male from Batan Province, Luzon, measures: Wing, 130; tail, 117; culmen from base, 29; bill from nostril, 20; tarsus, 30. A female from Mindoro measures: Wing, 132; tail, 119; culmen from base, 29; bill from nostril, 20; tarsus, 31.

"Called by the natives 'sa-ling'. Common where it occurs at all. Feeds entirely on fruits, and is often found in fruit trees in company with *Dicæidæ, Loriculi,* and other fruit-eating birds. It nests in dead trees." (*Bourns and Worcester MS.*)

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* The status of "*Sarcops lowii*" is doubtful; the description follows: "This species appears to be distinguished from the ordinary *Sarcops calvus* by its gray mantle, which resembles the rest of the back, and by the color of the under surface, which is silvery gray with a narrow blackish line down the center of the body, whereas in *S. calvus* the mantle is black, and the under surface also, only the flanks being gray." (*Sharpe.*)

734. SARCOPS MELANONOTUS Grant.

BLACK-BACKED COLETO.

Sarcops calvus SHARPE, Cat. Birds Brit. Mus. (1890), **13**, 97 (part); McGREGOR and WORCESTER. Hand-List (1906), 109 (part).

Sarcops melanonotus GRANT, Bull. Brit. Orn. Club (1906), **16**, 100; Ibis (1906), 469; McGREGOR, Phil. Jour. Sci. (1907), **2**, sec. A, 332 (notes on specimens from Bohol and measurements).

Basilan (*Everett, McGregor*); Bantayan (*McGregor*); Banton (*Celestino*); Bohol (*McGregor*); Catanduanes (*Whitehead*); Cebu (*Everett, Steere Exp., Bourns & Worcester, McGregor*); Dinagat (*Everett*); Leyte (*Everett, Steere Exp., Bartsch*); southern Luzon (*Whitehead, Bartsch*); Marinduque (*Steere Exp.*); Masbate (*Steere Exp., Bourns & Worcester, McGregor*); Mindanao (*Goodfellow, Celestino*); Negros (*Meyer, Steere, Everett, Steere Exp., Bourns & Worcester*); Panay (*Steere Exp., Bourns & Worcester*); Romblon (*Bourns & Worcester, McGregor*); Samar (*Steere Exp., Bourns & Worcester*); Sibuyan (*Bourns & Worcester, McGregor*); Siquijor (*Celestino*); Tablas (*Bourns & Worcester, Celestino*); Ticao (*McGregor*).

Adult.—Differs from *Sarcops calvus* only in having the back black forming a distinct dark area between the silvery gray of the hind neck in front and of the rump and tail-coverts behind.

Until recently *Sarcops* has been considered to be a monotypic genus. It is true that in 1877 Sharpe described *Sarcops lowii* from Sibutu, but as the type of this species remains unique we may consider its status to be at least doubtful. In 1895 Grant called attention to some differences between specimens of bald starlings collected in localities east of the meridian 122 and those from localities west of that line. Quoting in part from Grant: "we find that east of longitude 122 degrees, or thereabout, all the Philippine examples of *S. calvus* have the mantle and upper back brownish black; while west of this line all have the upper parts uniform silvery gray; intermediate forms being met with only in localities situated along the line where the two forms intergrade."

In 1906 Grant designated the eastern race as *Sarcops melanonotus* which is here recognized. The difference between the two races, while evident enough in extreme examples, is not always well marked. As Grant states, specimens taken near the meridian 122 are usually intermediate in the color of the mantle and are not satisfactorily referable to either race. These intermediate birds occur in Basilan, Bohol, Marinduque, Luzon, Tablas, Bohol, and Cebu. In Luzon and Bohol, at least, both varieties and intermediate specimens have been found.

Under these conditions it will be understood that the distribution of the two races of *Sarcops*, as indicated by islands, is only tentative, while the assignment of the various collectors to their proper places is more or less a matter of guesswork.

Genus GOODFELLOWIA Hartert, 1903.

Bill shorter than head; nostrils overhung by antrorse frontal plumes; bare space around each eye much smaller than in *Sarcops;* a long crest of decomposed feathers springing from the crown; tail much longer than wing; rectrices graduated; plumage black, glossed with steel-green; a large white patch on rump.

735. **GOODFELLOWIA MIRANDA** Hartert.

SPECTACLED STARLING.

Goodfellowia miranda Hartert, Bull. Brit. Orn. Club (1903), 11; Novit. Zool. (1906), **13**, 758, pl. 2, fig. 2; McGregor and Worcester, Hand-List (1906), 108.

Tu-ca-ling', Bagobo of Mount Apo.
Mindanao (*Goodfellow*, *Mearns*).

Adult (*sexes alike*).—Black, glossed with dark green; wings and tail blackish brown with little or no gloss; wing-lining and a large patch on lower back and rump white. "Iris dark brown, bare skin round eye yellow; bill yellow, shading into greenish yellow at the base; toes dirty olive or blackish olive; legs olive-yellow." (*Goodfellow.*) Length, about 300 mm. A male measures: Wing, 116; tail, 156; culmen from base, 22; tarsus, 25; crest, 31; difference between longest and shortest rectrices, 90. A female, wing, 114; tail, 162; culmen from base, 25; tarsus, 30; crest, 25; difference between longest and shortest rectrices, 92.

This peculiar starling is confined to the highlands of Mindanao.

Genus EULABES Cuvier, 1817.

Bill shorter than head and very stout; culmen strongly curved; nasal feathers antrorse, but short and not concealing the nostrils; feathers on head very short, those of lores and a broad band of feathers on each side of crown and occiput pile-like; a bare space below each eye; a bare space behind each eye ending in a fleshy flap, or wattle, on nape; tail square, less than one-half the wing and not extending beyond the very stout legs and feet; plumage black, glossed with blue and purple; a white bar on the wing.

736. EULABES PALAWANENSIS Sharpe.

PALAWAN WATTLED MYNA.*

Eulabes palawanensis SHARPE, Ibis (1888), 202; McGREGOR and WORCESTER, Hand-List (1906), 109.

Mainatus palawanensis SHARPE. Cat. Birds Brit. Mus. (1890), 13, 104.

Balabac (*Everett*); Calamianes (*Bourns & Worcester*); Palawan (*Steere, Everett, Lempriere. Whitehead, Platen, Steere Exp., Bourns & Worcester, Celestino, White*).

Adult (*sexes alike*).—Black, most of the plumage with a slight green gloss. but the gloss slightly bluish on throat, breast, and hind-neck, purplish on mantle; second to seventh primaries with a wide white band, but on the second confined to the inner web and sometimes indicated by a small white spot on the outer web of the eighth. A male from Palawan measures: Wing, 162; tail, 75; culmen from base, 30; bill from nostril, 19; tarsus, 36. A female from the same locality, wing, 168; tail, 74; culmen from base, 32; bill from nostril, 21; tarsus, 36.

"This wattled myna is common in Palawan and extremely abundant in the Calamianes Islands. It is a very noisy bird, and some of its cries are astonishingly human. Iris very dark brown; legs and feet bright yellow; nails yellow at base, white at tip; bill orange-red, yellow at tip; bare flesh of head bright yellow. Five males from the Calamianes average: Length, 281; wing, 106; tail, 77; tarsus, 34; middle toe with claw, 36. Four females from the same locality, length, 273; tail, 73; culmen, 30; tarsus, 33; middle toe with claw, 33." (*Bourns and Worcester MS.*)

Family CORVIDÆ.

Bill large and compressed, longer than head; culmen strongly curved; gonys straight; nostrils completely hidden by stiff antrorse frontal feathers, the longest of which equal nearly one-half the length of bill from base; first primary much shorter than second, but more than one-half the length of wing; second primary much shorter than third, fourth longest, third and fifth nearly equal; rectrices broad; tail slightly or much rounded; feet and tarsi strong, the latter less than culmen from base. Plumage entirely black, glossed with purple and green; sexes alike.

Genera.

a^1. Tail much rounded; first primary about equal to the outer secondaries. **Corone** (p. 722)

a^2. Tail very slightly rounded the rectrices subequal; first primary shorter than the outer secondaries........ **Corvus** (p. 723)

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* See note under crested myna.

Genus CORONE Kaup, 1829.

First primary about equal in length to the outer secondaries, the latter shorter than some of the more interior ones; tail much rounded and about as long as the longest secondaries.

737. CORONE PHILIPPINA (Bonaparte).

PHILIPPINE CROW.

Corvus philippinus BONAPARTE, Compt. Rend. (1853), **37**, 830; GRANT and WHITEHEAD, Ibis (1898), 234 (eggs); WHITEHEAD, Ibis (1899), 100 (habist).

Corone philippina SHARPE, Cat. Birds Brit. Mus. (1877), **3**, 42; MCGREGOR and WORCESTER, Hand-List (1906), 110.

Wak, in general use.

Babuyan Claro (*McGregor*); Bantayan (*McGregor*); Basilan (*Steere Exp., Bourns & Worcester, McGregor*); Bohol (*Everett, McGregor*); Bongao (*Bartsch*); Cagayancillo (*McGregor*); Calayan (*McGregor*); Caluya (*Porter*); Camiguin S. (*Murray*); Catanduanes (*Whitehead*); Cebu (*Everett, Bourns & Worcester,* [illegible] *Everett*); Fuga (*McGregor*); Guimaras (*Meyer, Steere Exp., Bourns & Worcester*); Libagao (*Porter*); Lubang (*McGregor*); Luzon (*Cuming, Meyer, Everett, Whitehead, Bourns & Worcester, McGregor*); Maestre de Campo (*McGregor & Worcester*); Marinduque (*Steere Exp.*); Masbate (*McGregor*); Mindanao (*Murray, Everett, Steere Exp., Bourns & Worcester*); Mindoro (*Steere Exp., Bourns & Worcester, McGregor*); Negros (*Meyer, Everett, Steere Exp., Bourns & Worcester, Whitehead*); Palawan (*Everett*);* Panaon (*Everett*); Panay (*Murray, Steere Exp., Bourns & Worcester*); Polillo (*McGregor*); Romblon (*Bourns & Worcester, McGregor*); Samar (*Steere Exp., Bourns & Worcester*); Semirara (*Worcester*); Sibay (*McGregor & Worcester*); Sibutu (*Everett*); Sibuyan (*Bourns & Worcester, McGregor*); Siquijor (*Steere Exp., Bourns & Worcester, Celestino*); Sulu (*Guillemard, Bourns & Worcester*); Tablas (*Bourns & Worcester*); Tawi Tawi (*Bourns & Worcester*); Ticao (*McGregor*); Verde (*McGregor*).

Adult.—Entirely black, the feathers white basally; feathers, of neck at least, more white than black; upper parts including greater part of wing glossed with purple; alula and primary-coverts glossed with dark green; two outer primaries without gloss; under parts. with a slight bluish gloss. Length, about 500 mm. A male from Siquijor measures: Wing, 325; tail, 230; culmen from base, 65; bill from nostril, 47; tarsus, 52. A female from Bohol, wing, 300; tail, 220; culmen from base, 60; bill from nostril, 41; tarsus, 48.

Three eggs of the Philippine crow collected by Steere in Marinduque, May, 1888, are thus described: "Shape ovate. Ground-color pale sea-green, thickly mottled all over, especially towards the larger end, with olive-brown; under-markings faint gray. Measurements 43 mm. by 28 mm. The nest is a loosely constructed platform of fiber, mixed with a few rootlets, etc." (*Grant and Whitehead.*)

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* The Philippine crow is given in Table II of Everett's paper on the birds of Palawan, *Proc. Zool. Soc.* (1889), 225, and this record is repeated in McGregor and Worcester's Hand-List (1906), 110, but there appears to be no other evidence of the occurrence of the Philippine crow in Palawan.

"The Philippine crow is very common throughout the Islands, except in the Palawan group, where it is lacking. It picks into young coconuts, steals young pigeons, and even comes into the kitchens of the native houses to steal. As a natural consequence, the bird is thoroughly detested. Two males measure: Length, 546; wing, 314; tail, 210; culmen, 59; tarsus, 54; middle toe with claw, 52." (*Bourns and Worcester MS.*)

Genus CORVUS Linnæus, 1758.

First primary decidedly shorter than the outer secondaries, the latter longer than any of the interior ones: tail very slightly rounded and shorter than the longest secondary.

Species.

a^1. Larger; wing, about 250 mm.; tail, 140; bill longer and more slender. **pusillus** (p. 723)

a^2. Smaller; wing, about 220 mm.; tail, 120; bill shorter and stouter. **samarensis** (p. 724)

738. CORVUS PUSILLUS Tweeddale.

LITTLE CROW.

Corvus pusillus Tweeddale, Proc. Zool. Soc. (1878), 622; Grant and Whitehead, Ibis (1898), 234, pl. 6, fig. 5 (egg); Whitehead, Ibis (1899), 100 (habits); McGregor and Worcester, Hand-List (1906), 110.

Balabac (*Everett*); Calamianes (*Bourns & Worcester, McGregor*); Mindoro (*Steere Exp., Schmacker, Bourns & Worcester, Whitehead, McGregor*); Palawan (*Everett, Lempriere, Whitehead, Platen, Steere Exp., Bourns & Worcester, Celestino, White*).

Adult.—Entirely black, faintly glossed with purple; bases of many of the feathers drab-gray or white; gloss on alula, primaries, and primary-coverts dark green. A male from Mindoro measures: Wing, 250; tail, 135; culmen from base, 50; bill from nostril, 37; depth of bill at nostril, 18; tarsus, 44. A female from Mindoro, wing, 240; tail, 145; culmen from base, 50; tarsus, 46.

Steere collected a single egg of this species in Mindoro in June, 1888. The egg, taken from the oviduct of female, is thus described: "Shape ovate, rather rounded towards the smaller end. Ground-color pale greenish white, finely spotted and dotted over the entire shell with greenish brown and pale lavender. Measurements 38 mm. by 26 mm." (*Grant and Whitehead.*)

"The little crow is very common in Mindoro; much rarer in Palawan and the Calamianes Islands. Unlike *Corone philippina*, it is a very shy bird. Its note sounds like that of an overgrown 'katy-did.' Iris dark brown; legs, feet, nails, and bill black. A male from Culion measures, 381 in length; wing, 243; tail, 136; culmen, 50; tarsus, 46; middle toe with claw, 45. A female from Palawan, length, 368; wing, 237; tail, 137; culmen, 47; tarsus, 39; middle toe with claw, 43." (*Bourns and Worcester MS.*)

739. **CORVUS SAMARENSIS** Steere.

SAMAR CROW.

Corvus samarensis STEERE, List Birds & Mams. Steere Exped. (1890), 23; McGREGOR and WORCESTER, Hand-List (1906), 110.

Mindanao (*Celestino*); Samar (*Steere Exp., Bourns & Worcester*).

Adult.—In color the same as *Corvus pusillus,* but smaller in size; bill somewhat shorter and deeper. A female from northern Mindanao measures: Length, 340; wing, 220; tail, 120; culmen from base, 47.5; bill from nostril, 34; depth of bill at nostril, 18; tarsus, 38.

"The Samar crow has the shy habits of *C. pusillus,* but its note is entirely different. We heard its note for a long time without suspecting that it was made by a crow. We occasionally found *C. pusillus* about the open fields, but never met with *C. samarensis* except on the sides of well-wooded hills. A male measures: Length, 355; wing, 252; tail, 116; culmen, 52; tarsus, 35; middle toe with claw, 45. Three females average: Length, 338; wing, 215; tail, 118; culmen, 48; tarsus, 46; middle toe with claw, 44. Iris dark brown; legs, feet, nails, and bill black. Food fruit and insects." (*Bourns and Worcester MS.*)

ADDITIONS AND CORRECTIONS.

Page 10: To localities for *Megapodius cumingi* add: Polillo (*McGregor*); under Luzon add: *Bartsch.*

Page 12: To names of collectors of *Excalfactoria lineata,* under Luzon, add: *Bartsch.*

Page 14: To localities for *Gallus gallus* add: Polillo (*McGregor*).

Page 27: To localities for *Osmotreron axillaris* add: Polillo (*McGregor*); under Negros add: *Celestino.*

Page 28: To names of collectors of *Osmotreron vernans,* under Luzon, add: *Bartsch.*

Page 30: To localities for *Phapitreron amethystina* add: Polillo (*McGregor*).

Page 33: To names of collectors of *Phapitreron maculipectus* add: *Celestino.*

Page 35: To names of collectors of *Phapitreron nigrorum,* under Negros, add: *Celestino.* To names of collectors of *Phapitreron brevirostris,* under Mindanao, add: *Bartsch.*

Page 35: Mearns has recently described a small brown pigeon from Samar.

PHAPITRERON SAMARENSIS Mearns.

SAMAR WHITE-EARED PIGEON.

Phapitreron samarensis MEARNS, Proc. U. S. Nat. Mus. (1909), **36**, 436.

"*Characters.*—Resembling *Phapitreron brevirostris,* but with forehead, chin, and throat whiter than in *P. albifrons* McGregor. From *P. brevirostris* it is readily distinguishable by the white forehead, chin, and upper throat, also by the much greater amount of coppery amethystine reflections on the crown, breast, and upper back, and by the usual absence of green reflections on the side of the hind head below the suborbital white stripe; and the under parts are much paler. From *P. albifrons* it may be at once distinguished by the different color of the under parts, which lack the olivaceous-gray on the breast, and by its more ochraceous abdomen; also the coppery reflections on the breast and upper back of *P. samarensis* are entirely absent in *P. albifrons.*

"*Measurements of type* (*from well-made skin of female*).—Total length, 230 mm.; wing, 124; tail, 95; culmen and cere (chord), 14; tarsus, 19; middle toe with claw, 26. 'Eyes pink. Feet, base of mandible, and around eyes, dark purple. Tip of bill black. Egg taken from ovary.' (*Bourns.*)

"*Measurements of adult male* (*Samar* * * *).—Wing, 129; tail, 95; culmen and cere (chord), 14.5; tarsus, 20; middle toe with claw, 27." (*Mearns.*)

This species, if valid, will probably include all the small-billed brown pigeons from Samar and Leyte.

Page 37: To names of collectors of *Leucotreron occipitalis,* under Negros, add: *Celestino.*

Page 38: To localities for *Leucotreron marchei* add: Polillo (*McGregor*).

Page 43: To localities for *Muscadivores nuchalis* add: Lapac (*Bartsch*); under Luzon add: *Bartsch.* To localities for *Muscadivores chalybura* add: Polillo (*McGregor*); under Negros add: *Celestino.*

Page 44: To localities for *Muscadivores œnea* add: Masbate (*Bartsch*).

Page 45: An imperial pigeon from Palmas Island has been described as—

MUSCADIVORES PALMASENSIS Mearns.

PALMAS ISLAND IMPERIAL PIGEON.

Muscadivores palmasensis MEARNS, Proc. U. S. Nat. Mus. (1909), 36, 436.

"*Characters.*—Closely related to *Muscadivores pickeringi* from Mangsee Island, north of Borneo, on the west side of the Sulu Sea; also to *Muscadivores langhornei* Mearns, from West Bolod Island, southeast of the Sulu Sea and near the Island of Basilan. From the type of *pickeringi* (Cat. No. 15,732 U. S. N. M.) it differs in being paler, with much less vinaceous color on the chin, throat, breast, and under tail-coverts. The wing is 10 mm. shorter. From *langhornei,* which it resembles more closely in the coloration of the under parts, it can be distinguished at a glance by the dark color of the mantle, rump, and upper tail-coverts.

"*Adult male* (*type, killed January 21*).—Head, neck, upper back, and upper parts, lilac-gray, purest on the upper side of the neck and upper back, washed with vinaceous on crown, ear-coverts, and breast, fading to whitish around base of bill, and shading to drab-gray on legs and crissum; scapulars, back, rump, and wing-coverts mouse-gray, lustrous in a certain light; wing-quills and upper tail-coverts dark mouse-gray, with subdued reflections of violet, coppery, and green; rectrices lustrous golden green above, smoke-gray below; flanks, axillars, and lining of wings clear gray. An adult male topotype in fresh plumage, shot by Dr. Paul C. Freer, October 7, 1906, only differs from the type in being appreciably darker. The sexes are practically alike in size and color.

"*Colors of soft parts.*—Two mated pairs, about to breed, had the soft parts colored exactly alike, January 21, 1906: Iris red; eyelids and feet vinaceous; claws dusky purplish gray; bare space surrounding eye, pale plumbeous; bill pale bluish gray at tip, darker plumbeous at base. Testicles functionally enlarged.

"*Measurements of two adult males* (*type and topotype measured fresh by the author*).—Total length, 420, 430 mm.; alar expanse, 735, 750; wing, 240, 240; tail, 156, 160; culmen (chord), 20, 20; tarsus, 32, 34; middle toe with claw, 46, 49." (*Mearns.*)

Page 48: To names of collectors of *Zonophaps poliocephala,* under Negros, add: *Celestino.*

Page 50: To localities for *Myristicivora bicolor* add: Lapac (*Bartsch*).

Page 51: To names of collectors of *Columba griseogularis,* under Negros, add: *Celestino.*

Page 52: To localities for *Macropygia tenuirostris* add: Polillo (*McGregor*); under Luzon add: *Bartsch.*

Page 54: To localities for *Streptopelia dussumieri* add: Polillo (*McGregor*); under Luzon add: *Bartsch.*

Page 59: To localities for *Chalcophaps indica* add: Polillo (*McGregor*).

Page 60: To localities for *Phlegœnas luzonica* add: Polillo (*McGregor*).

Page 68: To localities for *Hypotœnidia torquata* add: Polillo (*McGregor*).

Page 87: To names of collectors of *Hydrochelidon hybrida,* under Luzon, add: *Bartsch.*

Page 90: To names of collectors of *Sterna boreotis,* under Luzon, add: *Bartsch.*

Page 92: To localities for *Sterna sinensis* add: Polillo (*McGregor*); under Luzon add: (*Curl*).

Page 99: To localities for *Arenaria interpres* add: Polillo (*McGregor*).

Page 103: To localities for *Squatarola squatarola* add: Polillo (*McGregor*).

Page 104: To localities for *Charadrius fulvus* add: Polillo (*McGregor*).

Page 106: To localities for *Ochthodromus geoffroyi* add: Polillo (*McGregor*); Sulu (*Bartsch*); Tataan (*Bartsch*).

Page 108: To localities for *Ochthodromus veredus* add: Luzon (*Curl*).

Page 109: To names of collectors of *Ægialitis dubia,* under Luzon and Mindanao, add: *Bartsch.*

Page 112: To localities for *Ægialitis alexandrina* add: Sulu (*Bartsch*).

Page 117: To localities for *Numenius variegatus* add: Polillo (*McGregor*); under Mindanao add: *Bartsch.*

Page 119: To localities for *Mesoscolopax minutus* add: Luzon (*Curl*).

Page 122: To localities for *Totanus eurhinus* add: Polillo (*McGregor*).

Page 123: To localities for *Helodromas ochropus* add: Polillo (*McGregor*).

Page 125: To localities for *Heteractitis brevipes* add: Polillo (*McGregor*).

Page 126: To localities for *Actitis hypoleucos* add: Polillo (*McGregor*); Sulu (*Bartsch*); under Luzon add: *Bartsch*.

Page 129: To localities for *Glottis nebularius* add: Polillo (*McGregor*): under Mindanao add: *Bartsch*.

Page 130: To localities for *Rhyacophilus glareola* add: Polillo (*McGregor*); under Luzon add: *Bartsch, Curl*.

Page 132: To localities for *Calidris leucophæa* add: Polillo (*McGregor*).

Page 134: To localities for *Pisobia ruficollis* add: Polillo (*McGregor*).

Page 141: To localities for *Tringa crassirostris* add: Luzon (*Curl*).

Page 145: To localities for *Gallinago megala* add: Polillo (*McGregor*).

Page 149: To localities for *Lobipes lobatus* add: Luzon (*Curl*).

Page 154: To localities of *Orthorhamphus magnirostris* add: Tataan (*Bartsch*); Palaui, off Luzon (*Albatross*); Polillo (*McGregor*).

Page 157: To localities for *Plegadis autumnalis* add: Luzon (*Curl*).

Page 162: To names of collectors of *Pyrrherodia manilensis*, under Luzon, add: *Mearns*.

Page 160: To localities for *Dissöura episcopus* add: Polillo (*McGregor*).

Page 167: To localities for *Egretta garzetta* add: Polillo (*McGregor*).

Page 168: To localities for *Demigretta sacra* add: Polillo (*McGregor*); under Masbate and Mindanao add: *Bartsch*.

Page 170: To localities for *Nycticorax nycticorax* add: Polillo (*McGregor*).

Page 171: To names of collectors of *Nycticorax manillensis*, under Luzon, add: *Bartsch*.

Page 175: To localities for *Butorides javanica* add: Polillo (*McGregor*); under Luzon, Mindanao, and Samar add: *Bartsch*.

Page 177: To localities for *Bubulcus coromandus* add: Polillo (*McGregor*); under Mindanao add: *Bartsch*; under Negros add: *Celestino*.

Page 179: To names of collectors of *Ixobrychus cinnamomeus*, under Luzon, add: *Bartsch*.

Page 187: In fifth line from the bottom for Bantanyan read Bantayan.

Page 188: To names of collectors of *Dendrocygna arcuata*, under Mindanao, add: *Bartsch*.

Page 189: To localities for *Anas luzonica* add: Polillo (*McGregor*).

Page 196: To localities for *Spatula clypeata* add: Polillo (*McGregor*).

Page 202: To names of collectors of *Anhinga melanogaster*, under Luzon, add: *Bartsch*.

Page 223: Cancel ninth line from the bottom of the page.

Page 228: To names of collectors of *Spilornis holospilus*, under Mindanao, add: *Bartsch*.

Page 229: To names of collectors of *Spilornis panayensis*, under Negros, add: *Celestino*.

Page 230: To localities for *Butastur indicus* add: Polillo (*McGregor*).

Page 232: To names of collectors of *Haliæetus leucogaster,* under Bongao, add: *Bartsch.*

Page 233: To localities for *Haliastur intermedius* add: Polillo (*McGregor*).

Page 234: To localities for *Elanus hypoleucus* add: Leyte (*Bartsch*); under Mindanao add: *Bartsch.*

Page 258: Interpolate, after *Otus cuyensis:*

OTUS STEEREI Mearns.

TUMINDAO SCREECH OWL.

Otus steerei MEARNS, Proc. U. S. Nat. Mus. (1909), **36**, 437.

Tumindao, off Sitanki (*Mearns*).

"*Characters.*—Very similar to the Celebesian *Otus menadensis,* from which it may be distinguished by being larger, with upper parts darker, with more of the black vermiculations; black centers to the feathers of the under parts much less conspicuous; feathers of tarsus more heavily cross-barred with blackish. Of the Philippine species it is most closely related to *Otus cuyensis* McGregor, but is darker and much smaller, having the same white, black-tipped scapulars, but with the entire plumage darker and more heavily marked, and the wing 15 mm. shorter. It bears no close resemblance to any other Philippine species.

"*Measurements.*—Wing, 157 mm.; tail, 84; culmen from cere (chord), 15; tarsus, 33. Iris yellow; bill and feet greenish (from fresh specimen). The stomach of the type contained insects." (*Mearns.*)

Page 274: To localities for *Cacatua hæmaturopygia* add: Polillo (*McGregor*); Siasi (*Bartsch*): under Masbate and Samar add: *Bartsch.*

Page 278: To names of collectors of *Prioniturus discurus,* under Negros, add: *Celestino.*

Page 279: Mearns describes a parrakeet from Misamis Province, Mindanao as—

PRIONITURUS MALINDANGENSIS Mearns.

MALINDANG RACKET-TAILED PARRAKEET.

Prioniturus malindangensis MEARNS, Proc. U. S. Nat. Mus. (1909), **36**, 437.

"*Characters.*—Closely related to *Prioniturus waterstradti* Rothschild, from Mount Apo, southeastern Mindanao, from which it may be distinguished by its larger size, much yellower coloring of under side, greener, less brownish back and scapulars, longer tail, but much shorter naked shafts to the central pair of feathers.

"*Adult female (type and only specimen).*—Upper parts green, with slight touches of bluish on forehead, and a light greenish brown rump, as in *P. waterstradti;* wings bright green above, with concealed inner webs blackish, and outer webs narrowly edged with yellow; edge of wing yellow; rectrices green above tipped with dull black, beryl-green on under side, the shafts and spatules of the central pair dull black, with webs all green to the naked shafts; entire under parts golden green; axillars and lining of wings oil-green; under side of primaries dull black, broadly bordered on the inner webs with beryl-green. Iris dark brown; bill pale horn-color, faintly plumbeous at base and tip of mandibles; feet and claws plumbeous (from fresh specimen).

"*Measurements of type* (*female*).—Wing, 153 mm.; tail, 79 (to end of lengthened central pair, 126); culmen from cere (chord), 20; tarsus, 16; middle toe with claw, 25.

"*Measurements of adult female topotype of P. waterstradti* (* * *).—Wing 145 mm.; tail, 75 (to end of lengthened central pair, 151); culmen from cere (chord), 18; tarsus, 15; middle toe with claw, 25 (skin)." (*Mearns.*)

Page 281: To localities for *Tanygnathus lucionensis* add: Polillo (*McGregor*); under Lapac, Masbate, and Romblon add: *Bartsch;* under Negros add: *Celestino.*

Page 283: To localities for *Tanygnathus everetti* add: Polillo (*McGregor*).

Page 289: To names of collectors of *Loriculus regulus,* under Negros, add: *Celestino.*

Page 290: To localities for *Loriculus philippensis* add: Polillo (*McGregor*).

Page 294: To names of collectors of *Loriculus bonapartei,* under Sulu, add: *Bartsch.*

Page 302: To localities for *Eurystomus orientalis* add: Polillo (*McGregor*); under Masbate, Mindanao, and Samar add: *Bartsch.*

Page 304: To localities for *Pelargopsis gouldi* add: Polillo (*McGregor*).

Page 306: To localities for *Alcedo bengalensis* add: Polillo (*McGregor*); under Luzon add: *Bartsch.*

Page 308: To localities for *Alcyone cyanopectus* add: Polillo (*McGregor*).

Page 312: To localities for *Ceyx melanura* add: Polillo (*McGregor*).

Page 316: To names of collectors of *Ceyx bournsi,* under Negros, add: *Celestino.*

Page 320: To localities for *Halcyon gularis* add: Polillo (*McGregor*); under Luzon and Samar add: *Bartsch.*

Page 322: To localities for *Halcyon winchelli* add: Papahag (*Bartsch*).

Page 323: To localities for *Halycon chloris* add: Lapac (*Bartsch*); Polillo (*McGregor*); under Luzon, Masbate, and Mindanao add: *Bartsch.*

Page 326: To names of collectors of *Halcyon moseleyi* add: *Celestino.*

Page 332: To names of collectors of *Penelopides panini,* under Negros, add: *Celestino;* under Masbate add: *Bartsch.*

Page 333: To localities for *Penelopides manillæ* add: Polillo (*McGregor*).

Page 333: In fourth line from the botton for *manillæ* read *manilæ.*

Page 336: To names of collectors of *Penelopides affinis,* under Mindanao, add: *Bartsch.*

Page 338: To names of collectors of *Craniorrhinus waldeni,* under Negros, add: *Celestino.*

Page 338: To names of collectors of *Craniorrhinus leucocephalus,* under Mindanao, add: *Bartsch.*

Page 340: To names of collectors of *Merops americanus,* under Masbate, add: *Bartsch.*

Page 341: To localities for *Merops philippinus* add: Bongao (*Bartsch*); under Luzon and Masbate add: *Bartsch.*

Page 346: In the last line for *manillensis* read *manilensis.*

Page 350: Interpolate, before *Hemiprocne major:*

HEMIPROCNE COMATA (Temminck).

SUMATRAN WHISKERED SWIFT.

Cypselus comatus TEMMINCK, Pl. Col. (1824), 268 (Sumatra).
Macropteryx comata HARTERT, Cat. Birds Brit. Mus. (1892), **16**, 517 (part); SHARPE, Hand-List (1900), **2**, 89.
Hemiprocne major McGREGOR and WORCESTER, Hand-List (1906) 58 (part).

Mindanao (*Steere, Everett, Steere Exp., Bourns & Worcester, Goodfellow*); Samar (*Bourns & Worcester, Bartsch*); Sibutu *Everett*); Sulu (*Guillemard, Bourns & Worcester*). Sumatra, Java, Borneo, Natunas.

Diagnosis.—Smaller than *Hemiprocne major,* the wing about 127 mm.

Under *H. major* cancel: Mindanao, Samar, Sibutu, and Sulu.

Page 355: To names of collectors of *Collocalia troglodytes,* under Luzon, add: *Bartsch.*

Page 356: To localities for *Collocalia marginata* add: Mindanao (*Bartsch*); Polillo (*McGregor*); under Luzon add: *Bartsch.*

Page 360: To localities for *Tachornis pallidior* add: Negros (*Celestino*); Polillo (*McGregor*).

Page 362: To localities for *Pyrotrogon ardens* add: Polillo (*McGregor*); under Leyte add: *Bartsch.*

Page 364: In key to genera under g^1 for length read width.

Page 367: To names of collectors of *Surniculus velutinus,* under Negros, add: *Celestino.*

Page 374: To names of collectors of *Cacomantis merulinus,* under Negros, add: *Celestino.*

Page 379: To names of collectors of *Eudynamys mindanensis,* under Masbate, add: *Bartsch.*

Page 383: To localities for *Centropus viridis* add: Polillo (*McGregor*); under Luzon, Masbate, and Mindanao add: *Bartsch.*

Page 384: To names of collectors of *Centropus javanicus,* under Leyte, add: *Bartsch.*

Page 386: To localities for *Centropus unirufus* add: Polillo (*McGregor*).

Page 388: To localities for *Dasylophus superciliosus* add: Polillo (*McGregor*); under Luzon add: *Bartsch.*

Page 390: To names of collectors of *Xantholæma hæmacephalum,* under Luzon, add: *Bartsch.*

Page 391: To names of collectors of *Xantholæma roseum,* under Negros, add: *Celestino.*

Page 393: To names of collectors of *Yungipicus validirostris,* under Luzon, add: *Bartsch.*

Page 394: To names of collectors of *Yungipicus maculatus,* under Negros, add: *Celestino.*

Page 397: To localities for *Yungipicus ramsayi* add: Papahag, off Tawi Tawi (*Bartsch*).

Page 397: Interpolate, after *Yungipicus ramsayi:*

YUNGIPICUS SIASIENSIS Mearns.

SIASI PYGMY WOODPECKER.

Yungipicus siasiensis MEARNS, Proc. U. S. Nat. Mus. (1909), **36**, 438.

Siasi (*Bartsch*).

"*Adult male* (*type*).—Similar to the male of *Y. ramsayi,* but with a smaller bill and without white markings on the upper surface of the primaries or secondaries except a small concealed white spot on inner webs of several secondaries, and with much less white on the inner margins of the inner webs on under side of wing; and the orange-yellow of the under parts is much more restricted, being confined to a narrow band across the chest.

"*Adult female* (* * *).—Similar to the male, but lacking the elongated scarlet feathers on the edge of the posterior half of the crown and occiput, the entire upper surface of head and neck being dark brown. The white markings of the upper and under sides of the wings are restricted to the same extent as those of the type, and tend to form a very narrow brownish white margin to the inner webs of the innermost secondaries, below, instead of forming squarish detached white spots as in *Y. ramsayi:* the orange-yellow pectoral band as in the male.

"*Measurements of Yungipicus siasiensis.*—Adult male (type): Wing, 83 mm.; tail, 47; culmen, 19.5. Adult female (* * *): Wing 85 mm.; tail, 49; culmen, 20.2." (*Mearns.*)

Page 400: To localities for *Chrysocolaptes hæmatribon* add: Polillo (*McGregor*).

Page 401: To names of collectors of *Chrysocolaptes montanus,* under Mindanao, add: *Bartsch.*

"This is a species of eastern Mindanao, intergrading with *lucidus* at Pantar, western Mindanao, instead of being a mountain form." (*Mearns.*)

Page 402: To names of collectors of *Chrysocolaptes xanthocephalus,* under Negros, add: *Celestino.*

Page 403: To localities for *Lichtensteinipicus funebris* add: Polillo (*McGregor*).

Page 409: To names of collectors of *Thriponax hargitti,* under Negros, add: *Celestino.*

Page 410: In second line for BROAD BILLS read BROADBILLS.

Page 414: To localities for *Pitta erythrogastra* add: Negros (*Celestino*).

Page 426: To localities for *Hirundo rustica* add: Negros (*Celestino*).

Page 427: To localities for *Hirundo gutturalis* add: Negros (*Celestino*); under Luzon add: *Bartsch.*

Page 428: To localities for *Hirundo javanica* add: Polillo (*McGregor*); under Romblon add: *Bartsch.*

Page 429: To names of collectors of *Hirundo striolata,* under Luzon, add: *McGregor.*

Page 431: In the key to genera of *Muscicapidæ* the genus *Callaeops* should be inserted near *Terpsiphone.*

Page 433: To localities for *Hemichelidon griseosticta* add: Polillo (*McGregor*).

Page 438: To localities for *Cyornis philippinensis* add: Polillo (*McGregor*); under Luzon add: *Bartsch.*

Page 442: To names of collectors of *Muscicapula westermanni,* under Luzon, add: *Bartsch.*

Page 447: To names of collectors of *Gerygone simplex,* under Luzon, add: *Bartsch.*

Page 448: To localities for *Gerygone rhizophoræ* add: Tataan (*Bartsch*).

"This specimen is doubtfully referred to this species on account of its darker coloration and larger size than *Gerygone simplex.* The sides of the head are nearly as dark as in *G. rhizophoræ* from Mindanao, and, like it, the crissum is pale and the under tail-coverts white; but the upper parts are much paler, and the bill smaller than in typical *rhizophoræ.*" (*Mearns.*)

Page 451: To localities for *Hypothymis occipitalis* add: Polillo (*McGregor*); under Luzon and Mindanao add: *Bartsch.*

Page 455: To localities for *Cyanomyias cœlestis* add: Negros (*Celestino*).

Page 457: To names of collectors of *Rhipidura albiventris,* under Negros, add: *Celestino.*

Page 458: To names of collectors of *Rhipidura cyaniceps,* under Luzon, add: *Bartsch.*

Page 460: To localities for *Rhipidura nigritorquis* add: Polillo (*McGregor*); under Luzon and Tataan add: *Bartsch.*

Page 461: To names of collectors of *Xeocephus rufus,* under Negros, add: *Celestino.*

Page 470: Mearns has described as a subspecies, the *Rhinomyias* from the lowlands of Mindanao; if this form is valid it may stand as—

RHINOMYIAS MINDANENSIS (Mearns).

MINDANAO RHINOMYIAS.

Rhinomyias rufieauda mindanensis MEARNS, Proc. U. S. Nat. Mus. (1909), 36, 439.

"The series of this genus in the U. S. Nat. Mus. shows that there are three geographical forms of the rufous-tailed flycatcher, from the islands of Basilan, Mindanao, and Samar respectively.

"Compared with the Samar and Mindanao forms the Basilan form, *Rhinomyias ruficauda ruficauda,* has the under parts whiter, middle of chest grayer, sides of chest and flanks a grayer brown, with entire side of head slate-gray.

"*R. mindanensis* and *samarensis* both have brown cheeks and differ from each other in size the Mindanao form being larger. The upper surfaces are of a lighter, more olivaceous, and less rufescent color." (*Mearns.*)

Page 470: To localities for *Rhinomyias ocularis* add: Pangamian (*Bartsch*).

Page 474: To names of collectors of *Cryptolopha olivacea,* under Negros, add: *Celestino.*

Page 476: Interpolate, after *Cryptolopha mindanensis:*

CRYPTOLOPHA MALINDANGENSIS Mearns.

MALINDANG FLYCATCHER WARBLER.

Cryptolopha malindangensis MEARNS, Proc. U. S. Nat. Mus. (1909), 36, 440.

Mount Malindang, Mindanao (*Mearns*).

"*Characters.*—Similar to *Cryptolopha mindanensis* Hartert, from Mount Apo, Mindanao, but smaller, less yellow above and below, and with a distinct yellowish white postocular streak extending to the occiput; bill flesh-color instead of yellow on base of mandible; feet grayish flesh-color instead of plumbeous.

"*Adult male.*—Upper parts olive-green, darkest on the crown; wings and tail dark brown, broadly bordered with olive-green on the outer webs, but with outer rectrix white to the base, edged with pale yellow basally and with olive-brown terminally on outer web; second rectrix dark brown at base of inner web, white on terminal two-thirds, yellow on basal half of outer web and olive-brown on terminal half; third rectrix edged with white at tip of inner web and yellow on outer web at base; loral and postocular streak yellowish white; entire under parts sulphur-yellow, obscured by pale olive-green centers to the feathers; under tail-coverts plain sulphur-yellow; sides of chest and flanks olive-green, streaked with yellow; axillars and lining of wings pale sulphur-yellow; cheeks pale sulphur-yellow, mottled with very pale olive-green. Iris hazel; bill brownish black, flesh-color at base of mandible; feet grayish flesh-color, claws brown (from fresh specimen).

"*Comparative measurements of Cryptolopha mindanensis and C. malindangensis.*—Adult males (from skins): Wing, 58, 56 mm.; tail, 48, 46; bill from nostril, 7, 7; tarsus, 21, 21." (*Mearns.*)

Page 482: To names of collectors of *Artamides kochi,* under Samar, add: *Bartsch.*

Page 482: To localities for *Artamides striatus* add: Polillo (*McGregor*).

Page 483: To names of collectors of *Artamides panayensis,* under Masbate, add: *Bartsch;* under Negros, add: *Celestino.*

Page 487: To names of collectors of *Edolisoma panayense,* under Negros, add: *Celestino.*

Page 488: To names of collectors of *Edolisoma everetti,* under Lapac, add: *Bartsch.*

Page 490: To names of collectors of *Pericrocotus marchesæ,* under Sulu, add: *Bartsch.*

Page 493: To localities for *Pericrocotus cinereus* add: Polillo (*McGregor*).

Page 495: To localities for *Lalage niger* add: Polillo (*McGregor*); under Luzon and Masbate add: *Bartsch.*

Page 500: To localities for *Irena cyanogastra* add: Polillo (*McGregor*).

Page 506: To names of collectors of *Iole everetti,* under Mindanao, add: *Bartsch.*

Page 508: To localities for *Iole gularis* add: Polillo (*McGregor*); under Leyte and Luzon add: *Bartsch.*

Page 509: To names of collectors of *Iole guimarasensis,* under Masbate, add: *Bartsch;* under Negros, add: *Celestino.*

Page 511: To names of collectors of *Iole cinereiceps,* under Romblon, add: *Bartsch.*

Page 512: To localities for *Poliolophus urostictus* add: Polillo (*McGregor*); under Mindanao, add: *Bartsch.*

Page 718: Interpolate after the sixth line:

Species.

a^1. Back uniform silvery gray........................ calvus (p. 718)
a^2. Back more or less black in the center........................ melanonotus (p. 719)

A recently described subspecies of stork-billed kingfisher is based upon a male collected by Bartsch in the Island of Masbate. The citation is:

Rhamphalcyon capensis smithi MEARNS, Proc. U. S. Nat. Mus. (1909) **36**, 466.

This subspecies is said to be intermediate in color between *Pelargopsis gouldi* and *P. gigantea* and larger than either of them. The type measures: "Wing, 157 mm.; tail, 96; exposed culmen, 80; tarsus, 17."

I regret that a copy of the fifth and final volume of Sharpe's Hand-List of Birds was received in Manila too late for citation in the Manual.

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A MANUAL

OF

PHILIPPINE BIRDS

BY

RICHARD C. McGREGOR

PART I

GALLIFORMES TO EURYLÆMIFORMES

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OF

PHILIPPINE BIRDS

BY

RICHARD C. McGREGOR

PART II

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